INDEX

A cumulative index is included as a part of this Folder. Upon finding that a new tube is not listed on the roll chart of a tester covered in this service, refer to the latest Tube Tester Data Index to determine in which PHOTOFACT Set the data was published. If listed, reference to that Folder will provide the necessary data.

TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.	TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.	TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.
2CW4'	544	6D10'	544	8ET7	516
2EV5	512	6D10'	552†	8FQ7	536
2FQ5	524	6DA4	552†	10BQ5	552
2FS5	552	6DS4	560	10EM7	532
2FY5	512	6DX8	552	10HF8	536
2GK5	548	6EQ7	516	11JE8	556
3AW3	548	6ES8	524†	12BZ6	524†
3ES5	524	6ET7	544	12DY8	516
3EV5	512	6FA7	524	12EQ7	552
3GK5	556	6FD7	556	12GW6	528
3GS8	560	6FG7	552	13EM7	512
4AV6	532	6FJ7'	548	14JG8	552
4EH7	560	6FQ5	524	15EA7	528
4EJ7	560	6FQ7	532	17DM4	532
4ES8	524	6FS5	520	17GW6	528
4GS8	516	6FW5	520	19EZ8	524
5DJ4	528	6FY5	552†	19HV8	536
5EW6	536	6GK5	544	20EZ7	548
5FG7	544	6GW6	528	25DK4	540
6AJ8	524†	6GW8	528	34GD5	508
6AL3	524	6GX6	532	35HB8	548
6AX3'	548	6GY6	536	50FK5	536
6B10'	552	6HF8	532	VR75	524†
6C10'	548	6HG8	528	7233	540
6CB5	524†	6HJ8	516	7586'	548
6CB6	524†	6HS8	524	7587'	548
6CD6	524†	6JC8	544	7695	512
6CD7	512	6JE8	560	7701	520
6CQ4	528	6JH8	556	7716	520
6CW4'	544	6K11'	544	7895'	548

† See correction notice.

' These types can only be tested on 648S, 658A, 648 converted with 648 SM kit, and 658 converted with 658 SM kit.

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JACKSON MODEL 598

SET 560

SUPPLEMENTS LATEST ROLL CHART 598-3

Tube Type	A.	B.	C.	Fil. Cont.	D.	E.	F.	G.
3GS8	3.0	4		5	3	67Z	2	60
		4			8	79Z	2	60
4EH7	4.2	4	1	5	7	2	8Y	43
4EJ7	4.2	4	1	5	7		8	38
6JE8	6.3	4Y		5	9	7	8	29
	"	4Y			3	2		60

JACKSON MODEL 648

SET 560

SUPPLEMENTS LATEST ROLL CHART 648-25

Tube Type	Fil.	D.	E.	Plate Test
3GS8	3.0	A1249	358	65 XZ
			AB567	65 XZ
4EH7	4.2	1256	B379*	17 WX
4EJ7	4.2	A1256	B379*	30 XZ
6DS4♦	6.3	A123	A45	40 V
6JE8	6.3	A129	678*	22 XZ
	"	A124	A35	28 XZ

JACKSON MODEL 658

SET 560

SUPPLEMENTS LATEST ROLL CHART 658-5

Tube Type	Circuit Sec.	Heater	H-K	P-G	Plate	Grid Test	Heater Current
3GS8	P	3.0P	1249	358	55S	15XY•	
	P	"	"	ab567	"	15XY•	A8.5P Z600
4EH7	P	4.0N	1246	b579	43R	40WY•	A8.5P Z450
4EJ7	P	4.0N	1246	b579	22R	10WY•	A8.5P Z450
6DS4♦	T	6.4J	123	a45	42S	5WY•	
6JE8	P	6.4K	128	679	23R	15WY•	
	T	"	124	a35	68R	10WY•	

The PHOTOFACT® Servicer

SET 560 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ DEC. 1961

CONTENTS PHOTOFACT SET 560

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TELEVISION RECEIVERS	
SYLVANIA	
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TRUETONE	
2DC1270A, 2DC1272A, 2DC1274A	560-2
PRODUCTION CHANGE BULLETIN	
AIRLINE	
WG-2815B, WG-2816B, WG-2818A Stereo Phono	560-3
V-M	
207, 307, 806 Stereo Phono	560-3
OTHER EQUIPMENT	
ACME	
Tops A11 CH-620	560-4
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BKA61	560-10
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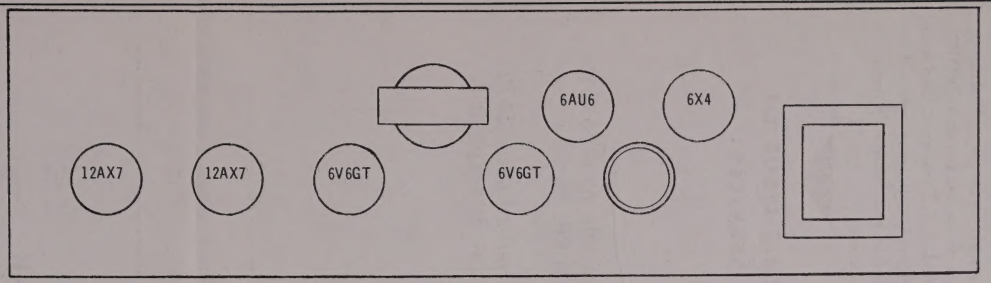
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

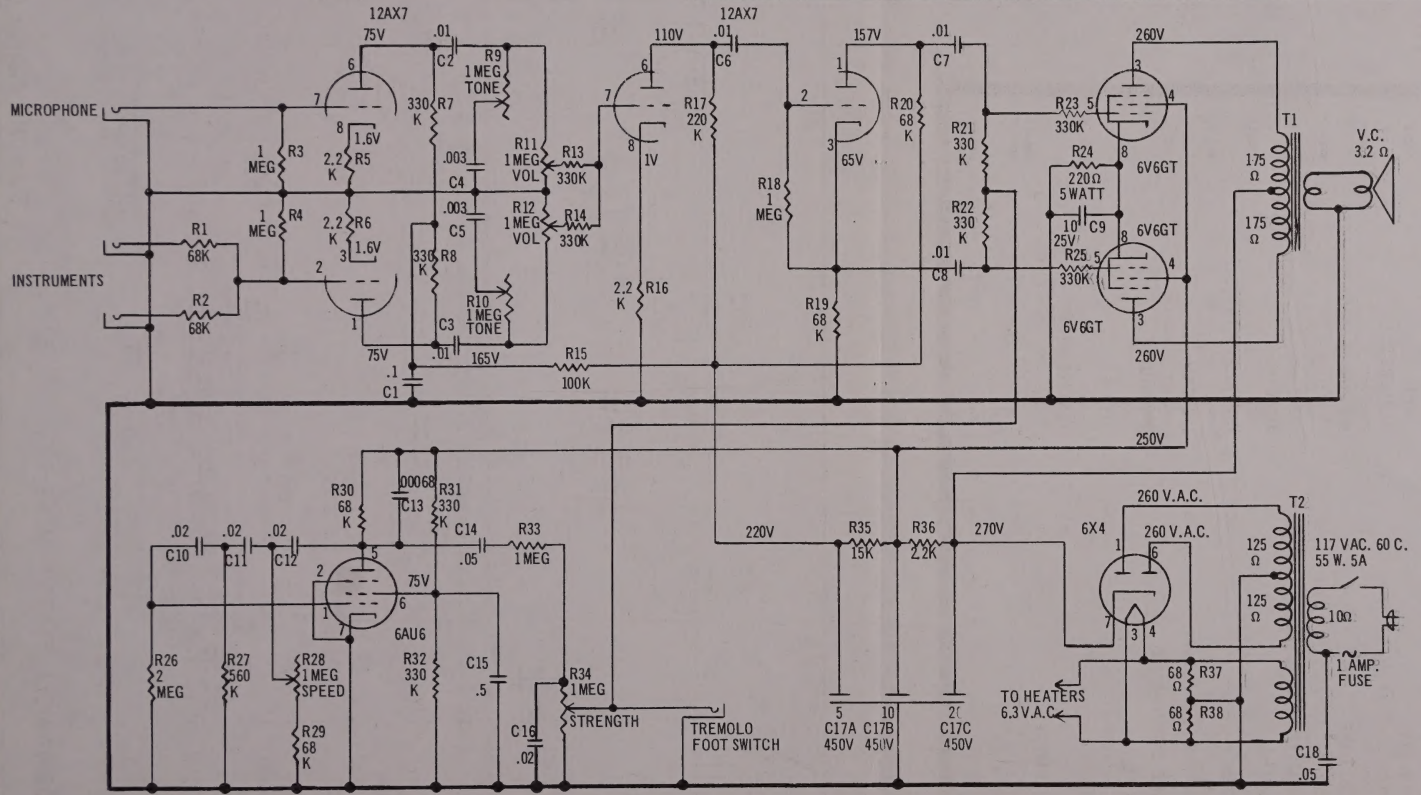
IN THIS ISSUE OF THE SERVICER:

Motorola Model 55X15
(CH. HS-90)

Silvertone Model 1472
(CH. 185.10210)

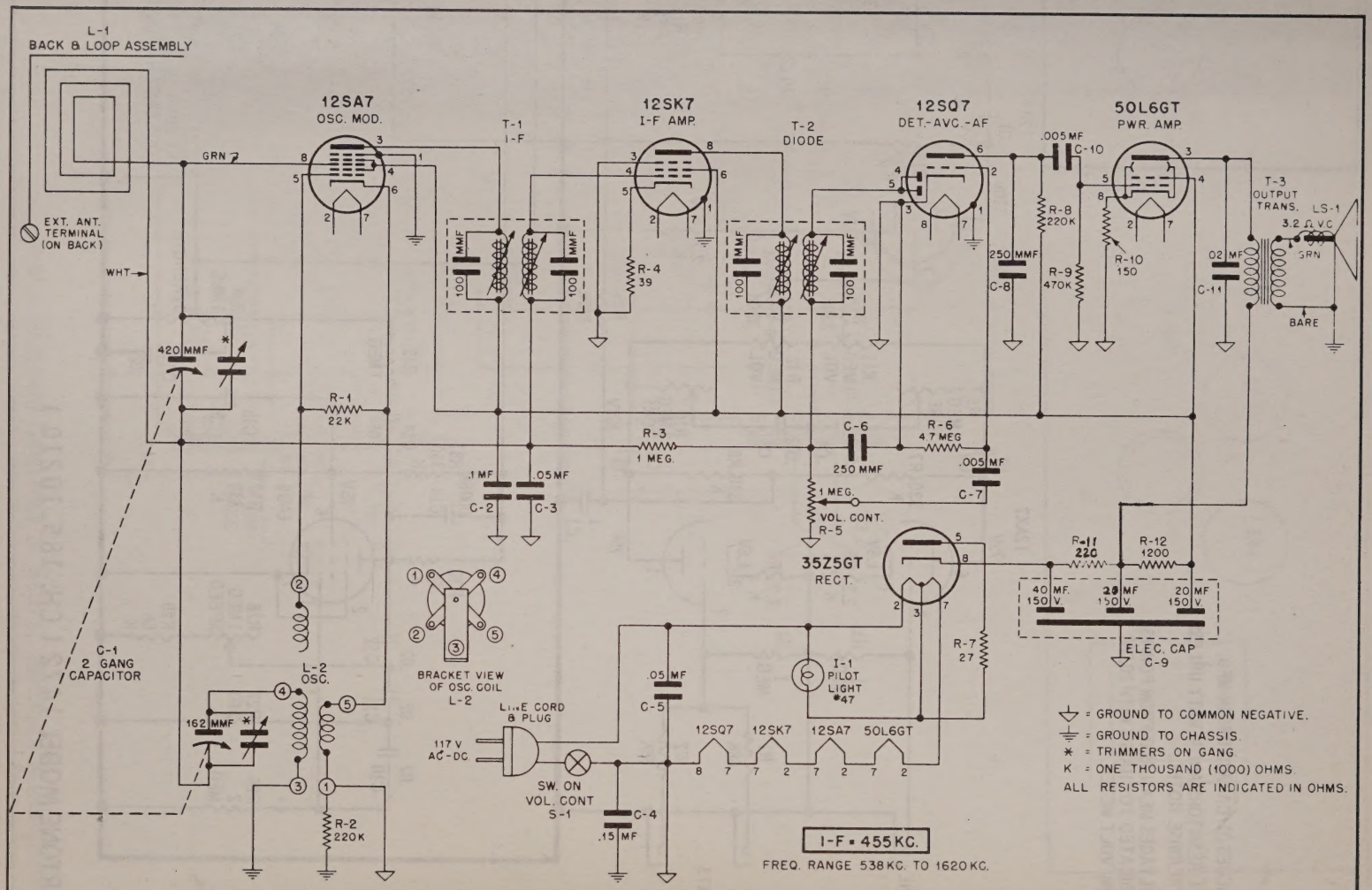
1. VALUES OF CAPACITORS IN MFD.
2. ALL RESISTORS ARE ½ WATT UNLESS OTHERWISE NOTED.
3. VOLTAGES MEASURED FROM POINTS INDICATED TO CHASSIS WITH 20,000 OHM/VOLT METER.





SILVERTONE MODEL 1472 (CH. 185.10210)

Schematic Diagram Courtesy of Sears, Roebuck & Company



MOTOROLA MODEL 55X15 (CH. HS-90)

Schematic Diagram Courtesy of Motorola Inc.

PHOTOFACT® Folder with CIRCUITRACE®

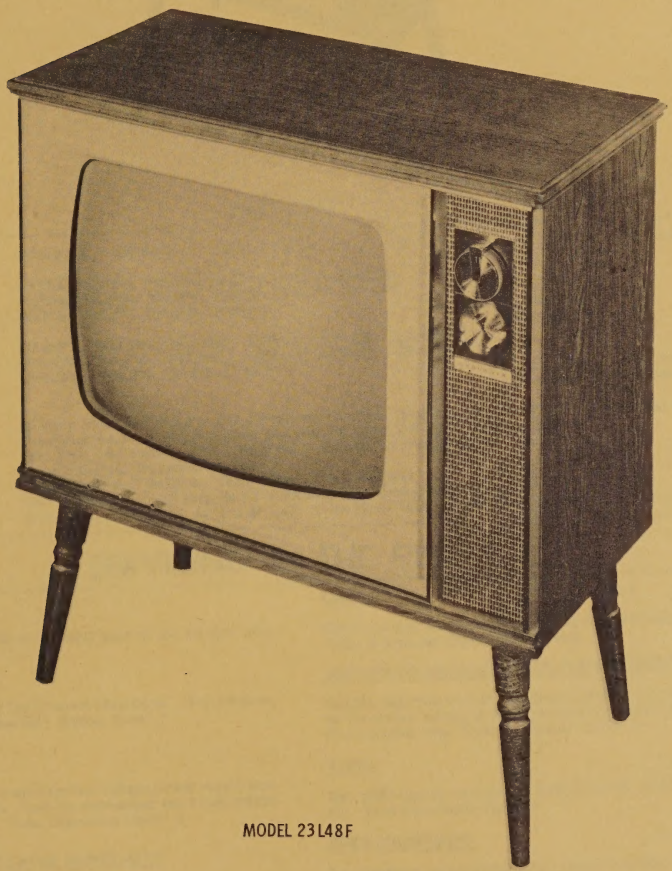
SYLVANIA CHASSIS
555-1, -2, -3, -5, -6, -7

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SYLVANIA CHASSIS
555-1, -2, -3, -5, -6, -7



MODEL 23L48F

SYLVANIA CHASSIS
555-1, -2, -3, -5, -6, -7

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SET 560 FOLDER 1

PHOTOFACT® Folder with CIRCUITRACE®

SYLVANIA CHASSIS 555-1, -2, -3, -5, -6, -7

SYLVANIA CHASSIS 555-1, -2, -3, -5, -6, -7

MODEL 23L48F

TRADE NAME	SYLVANIA MODELS (Chassis 555-1, -2, -3, -5, -6, -7)	VHF Tuner	UHF Tuner
	23L48F, 23L48M, 23L48W, 23L51D, 23L52D, 23L52M, 23T44B, 23T44M, 23T44W, 23V46B, 23V46M, 23V46W, 23V50B, 23V50F, 23V50M, 23V50W	323-0140 (54-97947-5)	
	23L48FU, 23L48MU, 23L48WU, 23L51DU, 23L52DU, 23L52MU, 23T44BU, 23T44MU, 23T44WU, 23V46BU, 23V46MU, 23V46WU, 23V50BU, 23V50FU, 23V50MU, 23V50WU	323-0141 (54-97947-6)	323-0139 (54-89843-4)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St. Batavia, N. Y.		
TYPE SET	Television Receiver (Some Models with Remote Control Receiver and Transmitter)		
TUBES	TV: VHF - Seventeen, UHF - Eighteen Remote Control Receiver: Two		
TRANSISTOR	Remote Control Transmitter: One		
POWER SUPPLY	110-120 Volts AC, 60 Cycle (Transmitter: 9 Volt Battery)		
RATING	VHF - 195 Watts, 1.85 Amp. @ 117 Volts AC (Less Remote and Halo-light)		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A fuse wire is used for filament protection. (For location, see M1 in photo "Chassis - Bottom View".)

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

VHF TUNER OSCILLATOR ADJUSTMENT

See Tuner Schematic for Oscillator slug location diagram.

AGC

The AGC may be varied by means of an AGC Control. (See "Tube Placement Chart" for location.

FOCUS

The focus may be varied by means of a Focus Control. (See "Tube Placement Chart" for location).

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A11) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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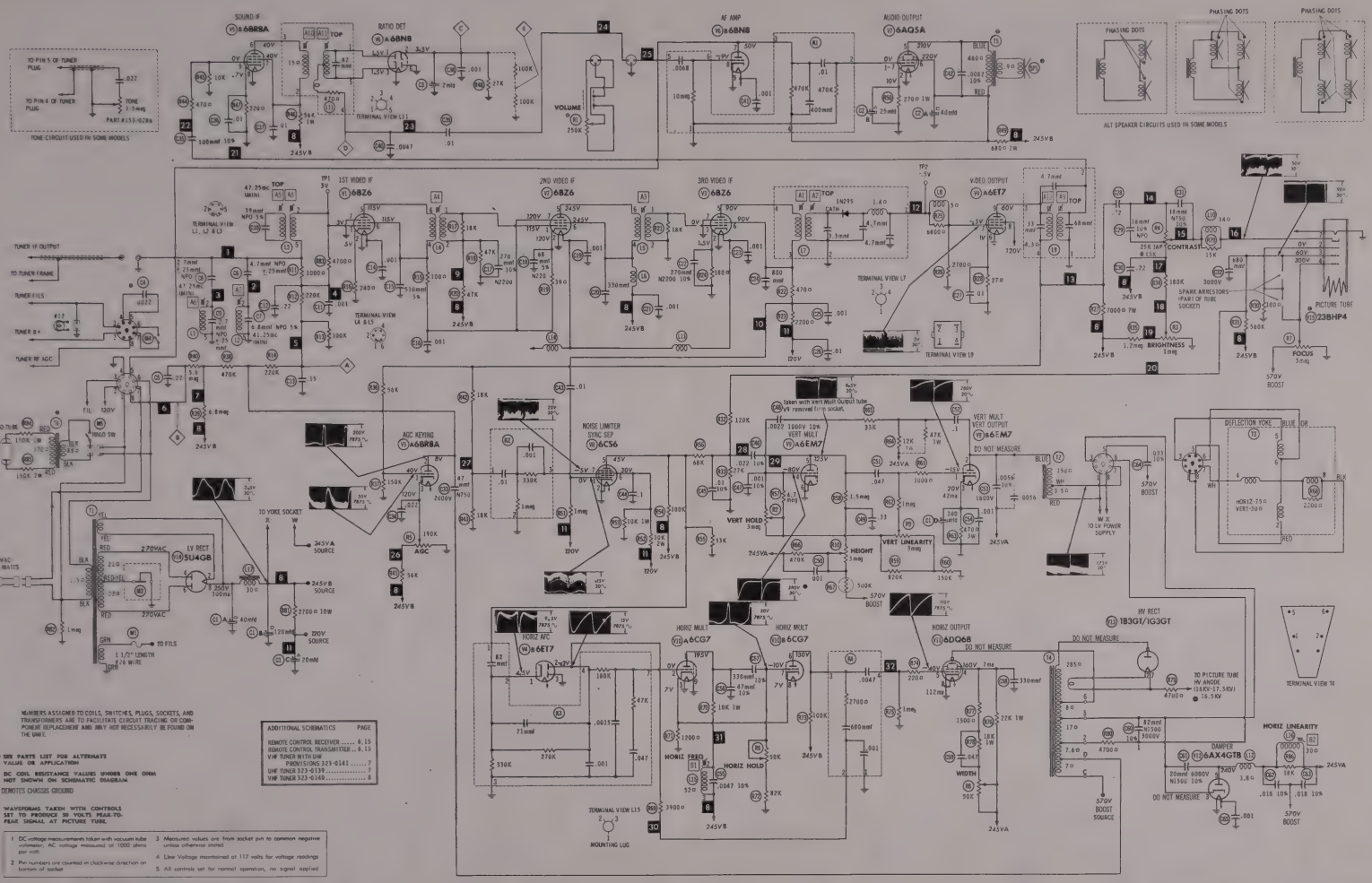
LA216

DATE 12-61 SET 560 FOLDER 1

SET 560 FOLDER 1



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

⏚ DENOTES CHASSIS GROUND

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

ADDITIONAL SCHEMATICS	PAGE
REMOTE CONTROL RECEIVER	6, 15
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VHF TUNER WITH UHF PROVISIONS 323-0141	7
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VHF TUNER 323-0140	8

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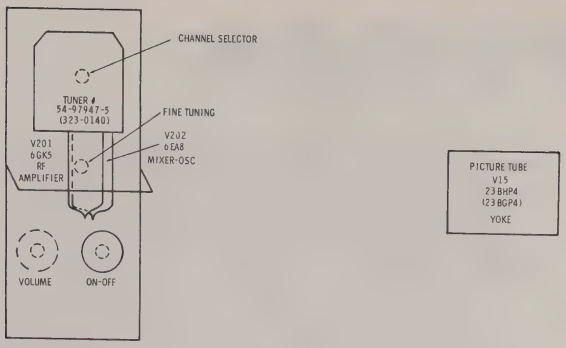
SYLVANIA CHASSIS 555-1, -2, -3, -5, -6, -7

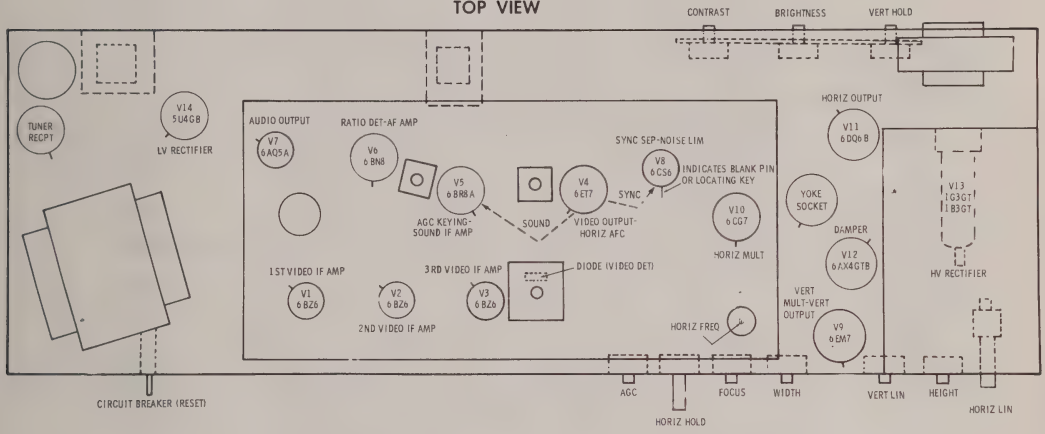
SYLVANIA CHASSIS 555-1, -2, -3, -5, -6, -7

FOLDER 1

TUBE PLACEMENT CHART



TOP VIEW



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Fil.), V14

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V9
Horiz. off freq. V4, V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V5, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V8
No horiz. sync V8
No vert. or horiz. sync V8

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 25 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Detune Mixer Plate Coil by turning slug fully counterclockwise.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .0047mfd to pin 1 (grid) of 3rd Video IF Amp. Low side to chassis.	44MC	42.25MC 43.5MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 33K to TP-2. Low side to chassis.	A1, A2	Adjust for maximum core separation, then adjust A1 for maximum gain at 43.5MC, then adjust A2 for proper tilt. Retouch A1 and A2 for response similar to Fig. 1.
2.	High side thru .0047mfd to TP-1. Low side to chassis.	"	42.6MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 is adjusted to position 45.75MC marker, A4 to position 42.6MC marker, and A2 to remove tilt. Retouch as required for desired response. Do not retouch A1.
3.	High side to ungrounded tube shield over Mixer-Osc. Low side to chassis	"	47.25MC	"	"	A5, A6	Detune A6, then adjust A5 for maximum dip at marker. Adjust A6 for maximum dip at marker.
4.	"	"	41.25MC	"	"	A7	Adjust to place marker in 41.25MC trap notch
5.	"	"	42.6MC	"	"	A8 and Mixer Plate Coil.	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. If necessary, retouch A4 and A2 slightly.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (C) to chassis. The junction of these two resistors is alignment point (E) as shown on the schematic.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Set Contrast fully clockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .001mfd to TP-2. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe to point (C). Common to chassis.	A9, A10	Adjust for maximum deflection.
7.	"	"	"	DC probe to point (D). Common to point (E).	All	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A12 for MINIMUM beat interference.

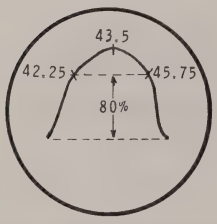


FIG. 1

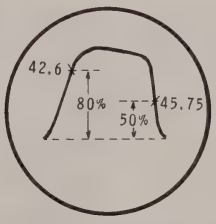


FIG. 2

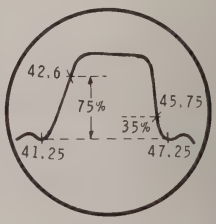
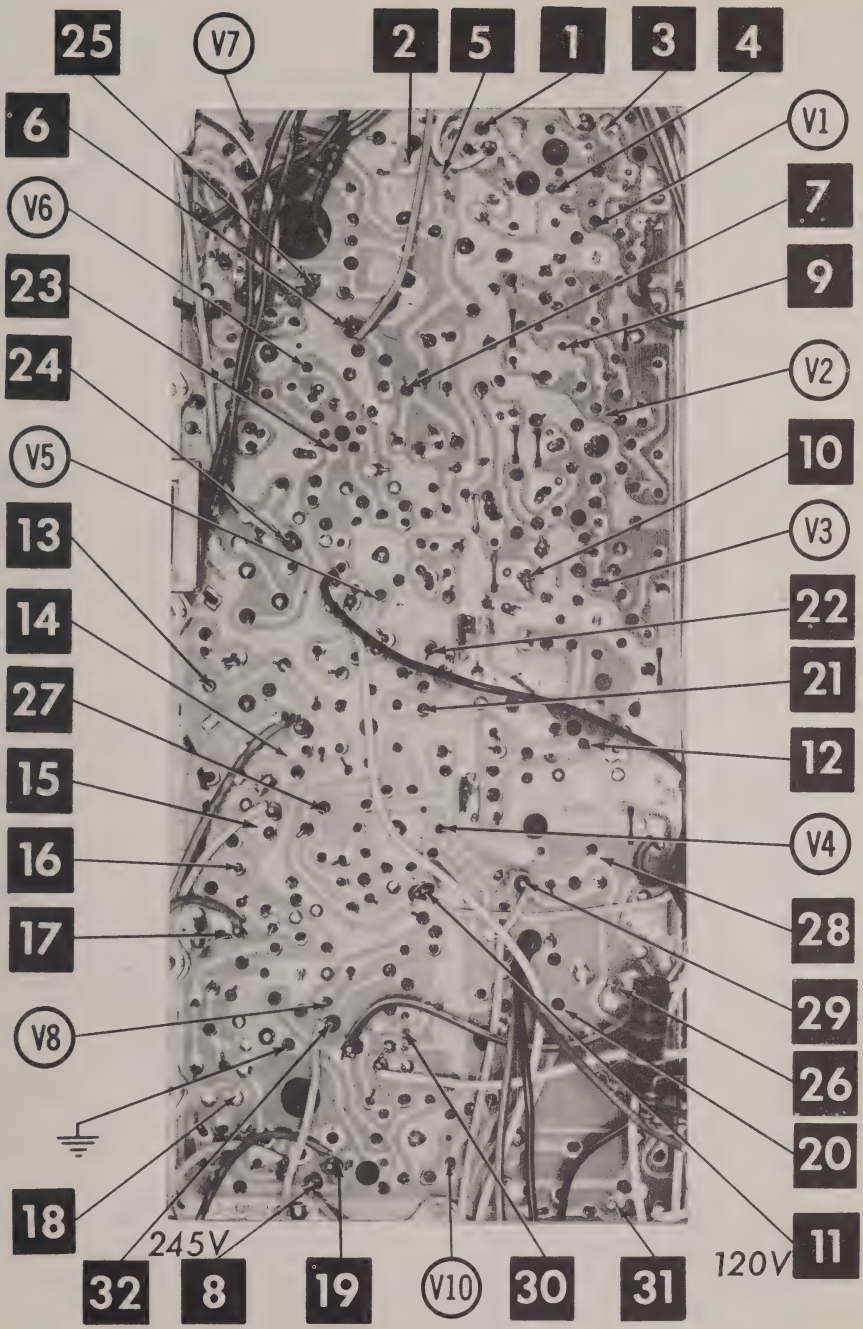


FIG. 3



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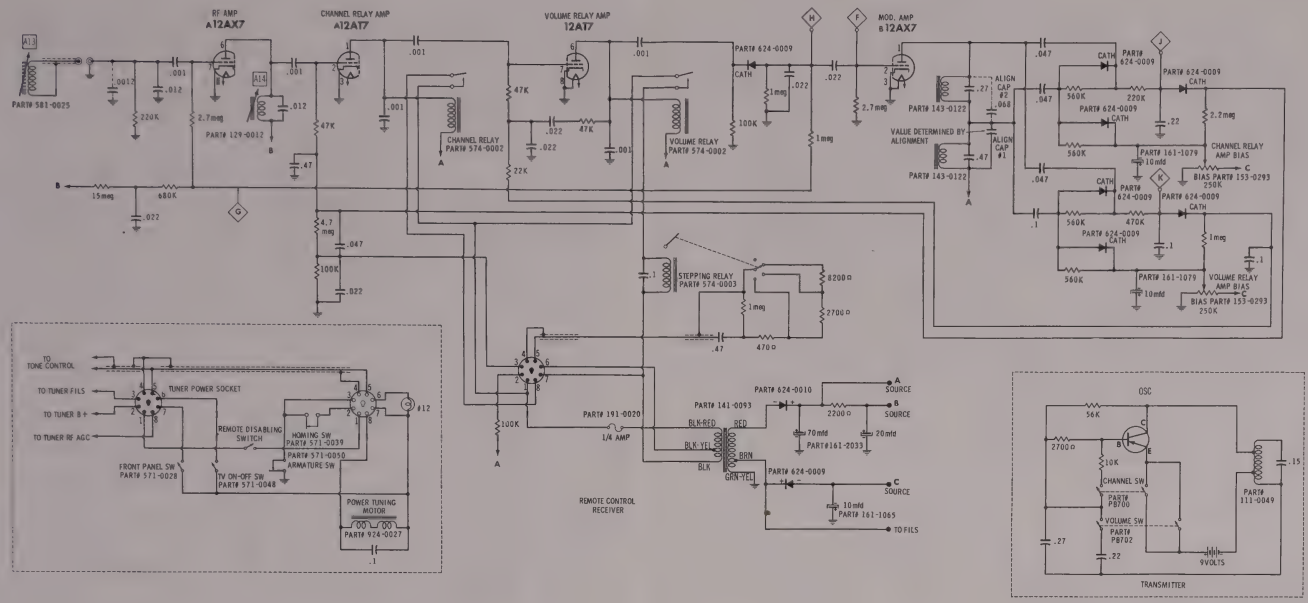
TV PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

SET 560 FOLDER 1



ALIGNMENT INSTRUCTIONS

	SPECIAL INSTRUCTIONS	CONNECT VTVM	ADJUST	REMARKS
1.	Place transmitter at least 2 feet from the receiver. The transmitter will be used as a signal source for alignment. Allow receiver to warm up. Connect clip leads from points (F) and (G) to chassis.	DC probe of VTVM to point (B). Common to chassis.	A13, A14	Depress either button on transmitter and adjust A13 and A14 for maximum deflection. Remove clip leads from points (F) and (G).
2.	"	VTVM across Channel Relay Coil	Channel Bias Cont.	Adjust for 2 volts on VTVM.
3.	"	VTVM across Volume Relay Coil	Volume Bias Cont.	Adjust for 2 volts on VTVM. Repeat steps 2 and 3 until the correct voltage is obtained since there is an interaction between these controls.
4.	Connect a 100Ω and 10Ω resistor in series from the filament string of Remote Control Receiver to chassis with the 10Ω resistor next to chassis. Connect the junction of these two resistors to point (F) thru a .1mfd. Connect a capacitor substitution box in place of the alignment capacitor #1.	DC probe of VTVM to point (J). Common to point (K).		Temporarily remove the signal from point (F) and ground point (F) while zeroing meter. Remove the ground from point (F) and replace signal. Adjust capacitor substitution box to zero VTVM. If zero reading occurs midway between two capacity values, select the value which tends to make the VTVM read positive. This then becomes the value of the alignment capacitor #1 to replace the old one. If zero cannot be obtained with a capacitor between .002 and .15 mfd, add or remove alignment capacitor #2 (.068). Check operation of receiver under normal conditions.

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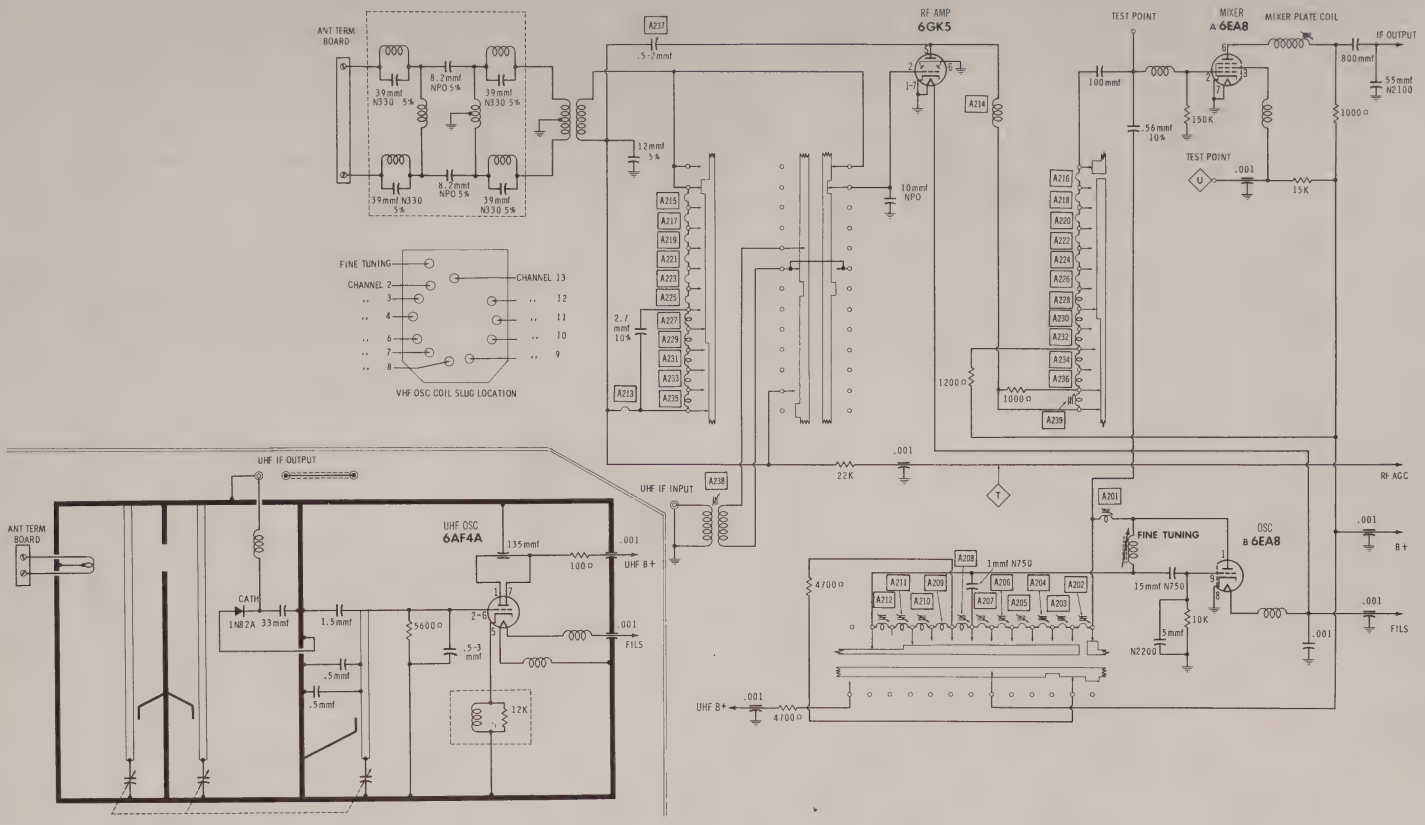
REMOTE CONTROL RECEIVER AND TRANSMITTER



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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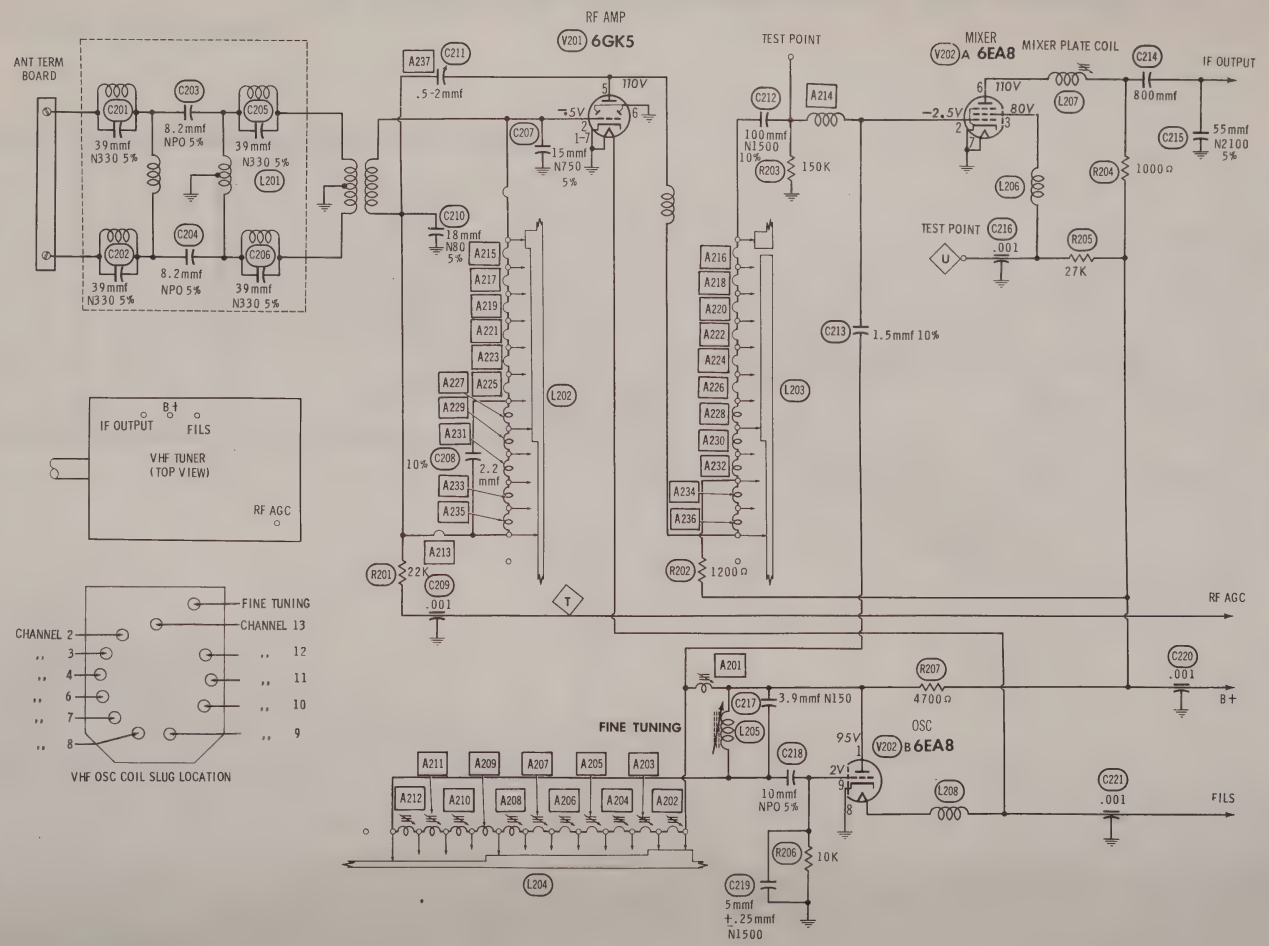
VHF TUNER WITH UHF PROVISIONS 323-0141, UHF TUNER 323-0139

SYLVANIA CHASSIS
555-1, -2, -3, -5, -6, -7



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 323-0140

VHF TUNER ALIGNMENT INSTRUCTIONS

323—0140, —0141

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537

VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
		207MC	205.25MC 209.75MC	12		A202	
		201MC	199.25MC 203.75MC	11		A203	
		195MC	193.25MC 197.75MC	10		A204	
		189MC	187.25MC 191.75MC	9		A205	
		183MC	181.25MC 185.75MC	8		A206	
		177MC	175.25MC 179.75MC	7		A207	
		85MC	83.25MC 87.75MC	6		A208	
		79MC	77.25MC 81.75MC	5		A209 *	
		69MC	67.25MC 71.75MC	4		A210	
		63MC	61.25MC 65.75MC	3		A211	
		57MC	55.25MC 59.75MC	2		A212	* Adjust by expanding or compressing coil turns.

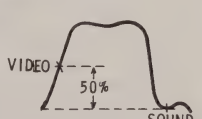


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 4.5volt bias supply to point (T). Positive to chassis.
Use 10MC sweep unless otherwise noted. Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Across VHF antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (D). Low side to chassis.	A213, A214	Adjust for maximum gain between markers with peak approximately 1.25MC above picture carrier as in Fig. 202.
		207MC	205.25MC 209.75MC	12		A215 A216	
		201MC	199.25MC 203.75MC	11		A217 A218	
		195MC	193.25MC 197.75MC	10		A219 A220	
		189MC	187.25MC 191.75MC	9		A221 A222	
		183MC	181.25MC 185.75MC	8		A223 A224	
		177MC	175.25MC 179.75MC	7		A225 A226	
		85MC	83.25MC 87.75MC	6		A227 A228	
		79MC	77.25MC 81.75MC	5		A229 A230	
		69MC	67.25MC 71.75MC	4		A231 A232	
		63MC	61.25MC 65.75MC	3		A233 A234	
		57MC	55.25MC 59.75MC	2		A235 A236	
3.	"	201MC	199.25MC 203.75MC	11	"	A237	Use full output of sweep generator Increase negative bias at point (T) to at least -10 volts. Adjust A237 for MINIMUM response.

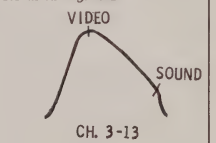
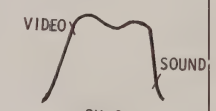


FIG. 202



UHF IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .001mfd to UHF IF input. Low side to chassis.	43MC	41.25MC 45.75MC	UHF	Vert. Amp. thru 10K to point (D). Low side to chassis.	A238, A239	Adjust for maximum gain approximately 1.25MC below picture carrier.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE
V1	1st Video IF Amp.	6BZ6
V2	2nd Video IF Amp.	6BZ6
V3	3rd Video IF Amp.	6BZ6
V4	Video Output - Horiz. AFC	6ET7
V5	AGC Keying - Sound IF Amp.	6BR8A
V6	Ratio Det. - AF Amp.	6BN6
V7	Audio Output	6AQ5A
V8	Sync Sep. - Noise Limiter	6C96
V9	Vert. Mult. - Vert. Output	6EM7
V10	Horiz. Mult.	6CG7
V11	Horiz. Output	6DQ6B
V12	Damper	6AX4GTB
V13	HV Rectifier	1GN2T/1B3GT
V14	LV Rectifier	5U4GB

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: SYLVANIA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V15	23BHP4 † 23BGP4 *				23BHP4 ① 23BGP4 ①	① Silver Screen "85" * Alternate † Non-Reflective (Tinted Type)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: SYLVANIA PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	⌀40	400	161-4037	AFH54-402-35			FP375		TVLS-3794 *
B	⌀120	400					WS560		TVA-1310
C	⌀20	350							
D	100	25							
C2A	⌀40	350	161-3028	FWH3-85-10	D0620 †		FP237, 3 ♦	TMD-2520 ♦	PCLS-2605,2*
B	⌀25	25							
C3	2	50	161-1067	PRS1300	BBR2-50	MT1-1	TC302	TD-2-50	TVA-1301

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use printed circuit adapters #55377 & 55378.
♦ Use printed circuit adapter kit TMA. ♦ Use printed circuit adapter kit FPA.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.0022	Note 1	BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C5	.22 100V		P288N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C6	4.7 NPO ± .25mmf		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C7	6.8 NPO 5%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C8	2.7 NPO ± 25mmf		NPO-DI 3.0		C10V3C			10TCC-V27
C9	2.7 NPO ± 25mmf		NPO-DI 3.0		C10V3C			10TCC-V27
C10	39 NPO 5%			TCZ-39	C10Q39C		CNO-439	10TCC-Q39
C11	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C12	.22 100V		P288N-001		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C13	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C14	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C15	510 5%				SRS7S1	CM-19B-511J		MS-551
C16	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C17	270 N2200 10%					"		
C18	68 N220 5%					"		10TCH-Q68
C19	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C20	330		SI 330		D6-331	L10T33	CCD-331	B-333	10TS-T33
C21	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C22	270 N2200 10%					"		
C23	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C24	800		SI 820		DD-801	L10T8	CCD-801	B-362	10TS-T80
C25	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C26	.01		BPD-001	DD-103	BYA10DM	CCD-103	B-110	5HK-S10
C27	.01 200V		P288N-01	DH-103	CUB4SI	4DP-1-103	GEM-411	4TM-S10
C28	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C29	18 NPO 10%		NPO-DI 20	TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C30	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C31	18 N750 10%		N750-DI 18	TCN-18	C10Q18U		CN7-418	10TCU-Q18
C32	680 3000V		BVD30-680	DD30-681	BVB30T68	3CCD-681	3HV-368	30GA-T68
C33	47 2000V N750	#169-0049						
C34	.022 400V		P488N-022	DD-203	CUB4S22	4DP-3-223	GEM-4122	4TM-S22
C35	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C36	.01		BPD-01	DD-103	BYA10DL	CCD-103	B-110	5HK-S10
C37	.01		BPD-01	DD-103	BYA10DL	CCD-103	B-110	5HK-S10
C38	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C39	.01		BPD-01	DD-103	BYA10DL	CCD-103	B-110	5HK-S10
C40	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C41	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C42	.0082 600V 10%		P684CM-0082		DPM56D82	6DP-1-822	GEM-16282	6PS-D82
C43	.01		BPD-01	DD-103	BYA10DL	CCD-103	B-110	5HK-S10
C44	1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C45	.01 400V 10%		V84C4S-10%		P484S1	4DP-1-103	GEM-1611	4TM-S10
C46	.022 400V 10%		V84C4S22-10%		P484S22	4DP-5-223	GEM-1612	4TM-S22
C47	.001 600V 10%		V84C6DI-10%		P486DI	6DP-1-102	GEM-1621	6TM-D10
C48	.0022 1000V 10%				DPM2K1D22	16DP-2-222	JL-222	10TM-D22
C49	.33 600V		P488N-33		CUB4P33	4DP-5-334	GEM-4033	
C50	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C51	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C52	.1 600V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C53	.0056 1600V 10%	#169-0068					GEM-16256	
C54	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C55	.0047 400V 10%		V84C4D47-10%		P484D47	6DP-1-472	GEM-16247	6TM-D47
C56	.47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C57	.330 10%		1469-00033		5R5T33	CM-19B-331K	MCB241	MS-333
C58	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C59	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C60	82 3000V N1500 10%	#169-0061						
C61	20 6000V N1500 10%	#169-0114						
C62	.018 600V 10%		P684CM-018		P6M82	6DP-2-203	GEM-1612	6TM-S20
C63	.018 600V 10%		P684CM-018		P6M822	6DP-2-203	GEM-1612	6TM-S20
C64	.033 600V 10%		V84C6S33-10%		P6M833	6DP-3-333	GEM-1613	6TM-S33
C65	.001		BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10

Note 1. Not used in Chassis with tone control.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
♦ Sylvania Part Number

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	250K -	½	153-0239 ①					Volume
R2	3meg	½	153-0289	B-84	B47-3meg-S	HLC-3	TA36L	Vert. Hold
R3A	1meg	½	153-0287	B-69	B47-1meg-S	BII-137	TA18L	Brightness
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R4	25K	½	153-0288					Contrast
	15K Tap							
R5A	190K	½	153-0291	TT-46	B47-200K-S	BII-129	TA184L	AGC
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R6A	50K	½	153-0292	B-31	B47-50K-S	BII-123	TA54L	Horiz. Hold
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R7	5meg	½	153-0257	TT-87	B47-5meg-S	HLC-5	PTA56L	Focus
R8A	50K	½	153-0236	TT-31	B47-50K-S	BII-123	PTA54L	Width
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R9	3meg	½	153-0278	TT-84	B47-3meg-S	HLC-3	TA36L	Vert. Linearity
R10	3meg	½	153-0278	TT-84	B47-3meg-S	HLC-3	TA36L	Height

① Some versions may use 250K with switch (Part #53-0285).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise noted.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	1000Ω			
R12	220K			
R13	100K 5%			
R14	220K 5%			
R15	100Ω			
R16	240Ω 5%			
R17	18K			
R18	47K 5%			
R19	39Ω 5%			
R20	47K 5%			
R21	18K			
R22	470Ω			
R23	2200Ω			
R24	180Ω			
R25	6800Ω			
R26	2700Ω			
R27	7000Ω 7W	PW7-7000	7G-7000	
R28	27Ω			
R29	15K			
R30	100Ω			
R31	560K			
R32	120K			
R33	27K			
R34	180K			
R35	1.2meg			
R36	56K			
R37	150K			
R38	470K 5%			
R39	6.8meg 5%			
R40	5.6meg			
R41	56K			
R42	18K			
R43	18K			
R44	470Ω			
R45	10K			
R46	56K 1W			
R47	220Ω			
R48	27K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R49	680Ω 2W			
R50	270Ω 1W			
R51	1meg			
R52	10K 2W			
R53	10K 1W			
R54	100K			
R55	33K			
R56	68K			
R57	4.7meg			
R58	1.5meg			
R59	820K			
R60	150K			
R61	1000Ω			
R62	1meg			
R63	470Ω 3W	3W-470	3G-470	
R64	12K 1W			
R65	33K			
R66	470K			
R67	500K			
R68	2200Ω			
R69	3900Ω 5%			
R70	10K 1W			
R71	1200Ω			
R72	82K			
R73	100K			
R74	220Ω			
R75	1meg			
R76	22K 1W			
R77	1500Ω			
R78	18K 1W			
R79	4700Ω			
R80	4700Ω			
R81	2700Ω 10W	PW10-2700	10W-SQ-2700	
R82	1meg			
R83	4700Ω 5%			
R84	150K 2W			
R85	150K 2W			
R86	18K			

Sylvania Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Audio Coupling	400mmf, .0068mfd, .01mfd, 470K, 470K, 10meg	190-0058	Centralab PC-391
K2	Sync Sep. Grid	.001mfd, .01mfd, 330K, 1meg	190-0043	
K3	Horiz. AFC	71mmf, 82mmf, .001mfd, .0015mfd, .047mfd, 47K, 180K, 270K, 330K	190-0062	
K4	Horiz. Mult. Plate	680mmf, .001mfd, .0047mfd, 2700Ω	190-0081	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	47.25MC Trap	119-0026				TE204	
L2	41.25MC Trap	120-0027				TE209	
L3A	1st Video IF	119-0027				TE205	
B	47.25MC Trap						
L4	2nd Video IF	119-0028				TE206	
L5	3rd Video IF	119-0028				TE206	
L6	RF Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	
L7A	4th Video IF	119-0030 ①					① Complete Assembly
B	RF Choke						
L8	Peaking (66uh)	131-2036	TV-193	6172	RTC-8590	T339	
L8A	4.5MC Trap	120-0023	TV-157 ▲	▲6203-PC	RTC-8546 ▲	TE208	▲ Connect 4.7mmf capacitor externally.
B	Sound Takeoff						
L10	Peaking (385uh)	131-2037	TV-201	6134	RTC-8578	T350	
L11	Ratio Detector	127-0002				TC243	
L12	RF Choke (12uh)	118-0010	BC-566	4612	RTC-8522	T860	
L13	Fil. Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	
L14	Fil. Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L15	Horiz. Stabilizer	132-0034				HS-16		TA195	
L16	Horiz. Linearity	132-0037	MWC-12	6314	WC-18A	WC-14	WLC-3	TA196	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(1)	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L17	.300A	30Ω	.45 Hy.	145-0043		C-2343①		C-36X	① Drill new mounting hole(s).

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ 1.85A	540VCT @ .300A DC	5V @ 3A	141-0092		P-8356①		R-127A	① Drill new mounting hole(s).
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 8.1A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	241-0047	A-2815 ①	VO-108 ②		A-144X	
T3	Yoke (Horiz. 31MH) (110°) (Vert. 36MH)	100-0038 †	MDF-110 ④	DY-42A ③	Y-46	Y-66-1	
	Yoke Clamp	467-0076					
	Rear Cover and Centering Device	400-0039					
T4	Horiz. Output	241-0053				D-302 *	

① Use 8 to 1 Turns Ratio.
② Drill new mounting hole(s).
③ Connect yoke terminal #2 to yoke plug pin #3; yoke terminals #1 and #3 to yoke plug pin #6; yoke terminal #7 to yoke plug pin #5; yoke terminal #4 to yoke plug pin #7; yoke terminal #6 to yoke plug pins #1 and #8.
④ Connect blue lead of yoke to yoke plug pin #3; connect orange lead of yoke to plug pin #6; connect red lead to yoke plug pin #5; white lead to yoke plug pin #7; black lead to yoke plug pins #1 and #8.
† Yoke and plug assembly Pt. #100-0042.
* Connect same as original.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	5600Ω	3-4Ω	143-0081 ②	A-3026	A-3877 ①	24S48	S-8X	① Drill new mounting hole(s).
			143-0073 ③	A-2902	A-3850 ①	24S05 ①	S-83X ①	② Used in 23L48, 23T44 Series.
			143-0046 ④	A-3020	A-3823	26S48	S-83X	③ Used in 23V46, 23V50, 23L61 Series.
								④ Used in 23L52 Series.

TRANSFORMER (HALOLIGHT)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	117V @ .1A	1350V @ .001A		141-0081 ①					① Used in 23L48, 23V50, 23L61, 23L52 Series

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: SYLVANIA PART No.	QUAM PART No.	NOTES
SP1	5 1/4"	PM	3-4Ω	539-0580 ①	52A1	① Used in 23L48 Series
	4"	PM	3-4Ω	539-0436 ②	4A05	② Used in 23L51, 23V46, and 23V50 Series
	6 1/2"	PM		539-0652 ③④⑤		③ Used in 23L52 Series
	5 1/4"	PM		539-0581 ③		④ Alternate Part #539-0654
	3" x 5"	PM		539-3500 ⑤		⑤ Used in 23T44 Series

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: SLVYANIA PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M1	1¼"	length of #26 wire						

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M2	Tuner	323-0140	(54-97947-5) VHF
	Tuner	323-0141	(54-97947-6) VHF with UHF Provisions
	Tuner	323-0139	(54-98943-4) UHF
M3	Circuit Breaker	191-0027	
M4	Switch	571-0047	Off-On (Some versions use Volume Control with Switch Pt. #53-0285).
M5	Switch	571-0028	Halo, Off-On
	Halo Tube	611-2300	

WIRING DATA

High Voltage Lead	Use BELDEN No. [illegible]
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

SYLVANIA CHASSIS 555-1, -2, -3, -5, -6, -7

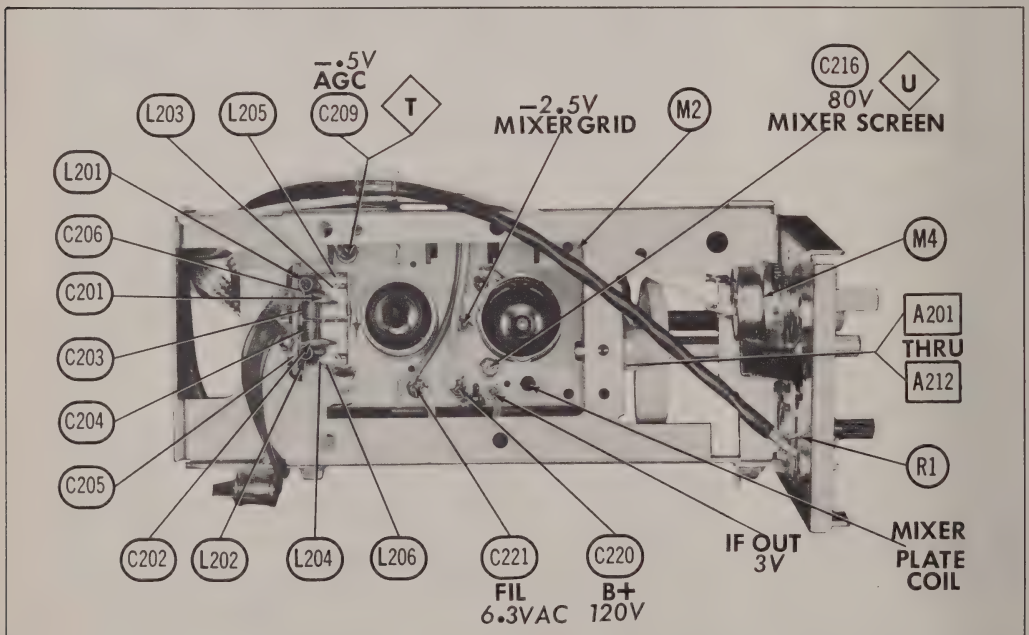
FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

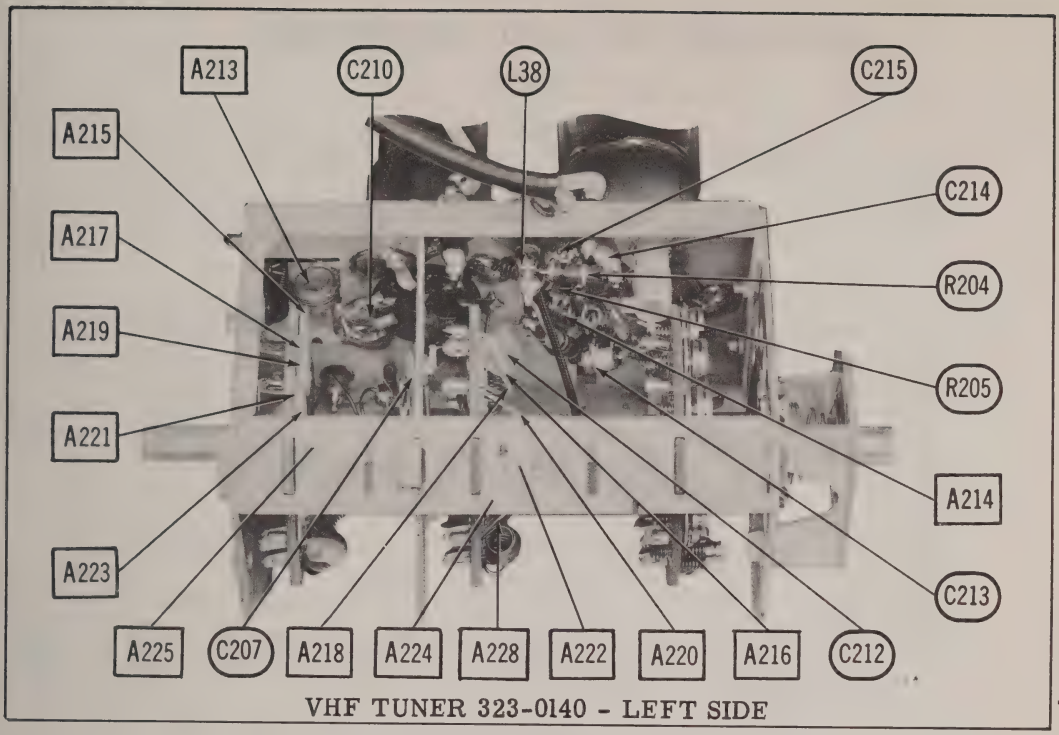
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

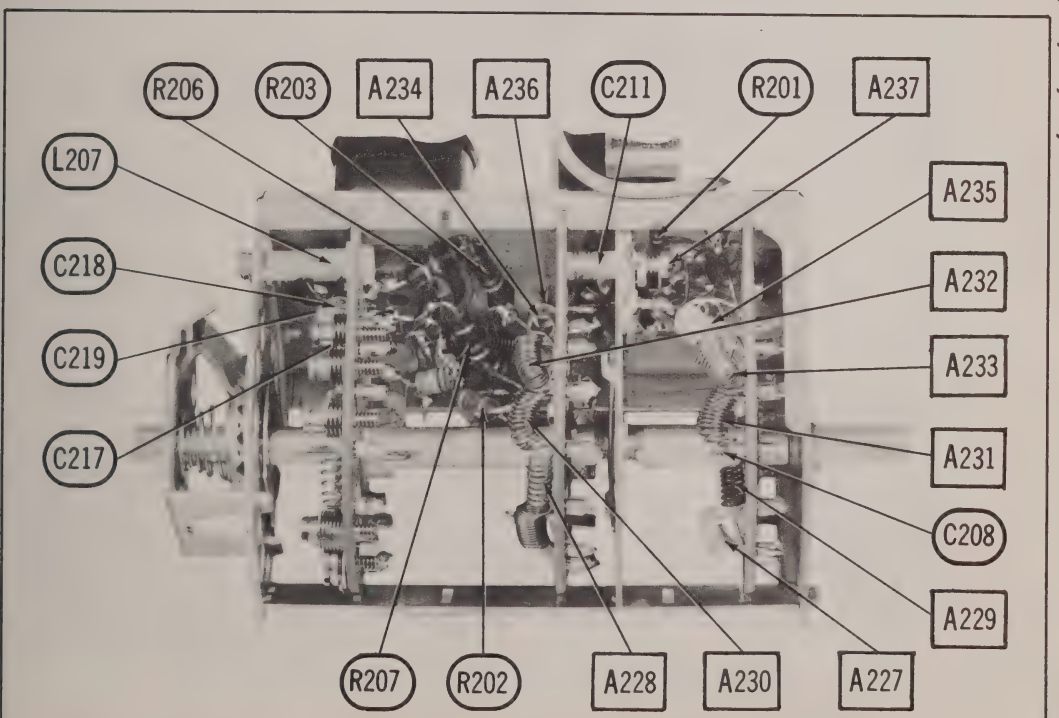
DESCRIPTION	PART NO.	MODEL NO.	23L48F, M, W	23L48FU, MU, WU	23L51D	23L51DU	23L52D, M	23L52DU, MU	23T44B, M, W	23T44BU, MU, WU	23V46B, M, W	23V46BU, MU, WU	23V50B, F, M, W	23V50BU, FU, MU, WU	
Window-VHF Chan. Indicator	722-0098								X	X	X	X			
Mask	716-0080		X	X	X	X	X	X					X	X	
Mask	716-0079								X						
Mask	716-0092									X					
Mask	716-0081										X				
Mask	716-0091											X			
Mask-Remote Control Models	716-0082										X	X			
Dial-VHF Chan. Indicator	722-0100		X	X	X	X	X	X	X	X	X	X	X	X	
Dial-VHF Chan. Indicator Remote Control Models	722-0103		X	X	X	X	X	X			X	X			
Dial-UHF Chan. Indicator	722-0099			X		X		X		X		X		X	
Knob-UHF Chan. Selector	740-0512			X		X		X		X		X		X	
Knob-VHF Chan. Selector	740-0510		X	X			X	X	X	X	X	X			
Knob-VHF Chan. Selector	740-0519				X	X							X	X	
Knob-VHF Fine Tune, Tone, Volume, On-Off	740-0511		X	X	X	X	X	X	X	X	X	X	X	X	
Knob-Contrast, Vert. Hold, Brightness	740-0509		X	X	X	X	X	X	X	X	X	X	X	X	
Pushbutton-Transmitter Chan. Sel.	740-0516		X	X	X	X	X	X			X	X			
Pushbutton-Transmitter Volume	740-0515		X	X	X	X	X	X			X	X			
Cabinet-Transmitter	822-0173		X	X	X	X	X	X			X	X			



CONTROL BRACKET-
VHF TUNER 323-0140 —TOP VIEW



VHF TUNER 323-0140 - LEFT SIDE



VHF TUNER 323-0140 - RIGHT SIDE

TUNER PARTS LIST AND DESCRIPTIONS

323-0140

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6GK5	V202	Mixer - Osc.	6EA8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	39 N330 5%	#168-0116				*		10TCS-Q39
C202	39 N330 5%	#168-0116				*		10TCS-Q39
C203	8.2 NPO 5%		NPO-DI 8.2		C10V82C			10TCC-V82
C204	8.2 NPO 5%		NPO-DI 8.2		C10V82C			10TCC-V82
C205	39 N330 5%	#168-0116				*		10TCS-Q39
C206	39 N330 5%	#168-0116				*		10TCS-Q39
C207	15 N750 5%			DTN-15	C10Q15U		CN7-415	10TCU-Q15
C208	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C209	.001		EF-001	MFT-1000		CCF-102	CT280A	
C210	18 N80 10%	#168-0018N				*		
C211	.5-2			829-3		CV-1	CT565	
C212	100 N1500 10%	#168-0111				*		
C213	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C214	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C215	55 N2100 5%	#166-0055				*		
C216	.001		EF-001	MFT-1000		CCF-102	CT280A	
C217	3.9 N150	#168-0122				*		
C218	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-V10
C219	5 N1500 ±.25mmf	#168-0067				*		
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	.001		EF-001	MFT-1000		CCF-102	CT280A	

Sylvania Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	22K				R205	27K			
R202	1200Ω				R206	10K			
R203	150K				R207	4700Ω			
R204	1000Ω								

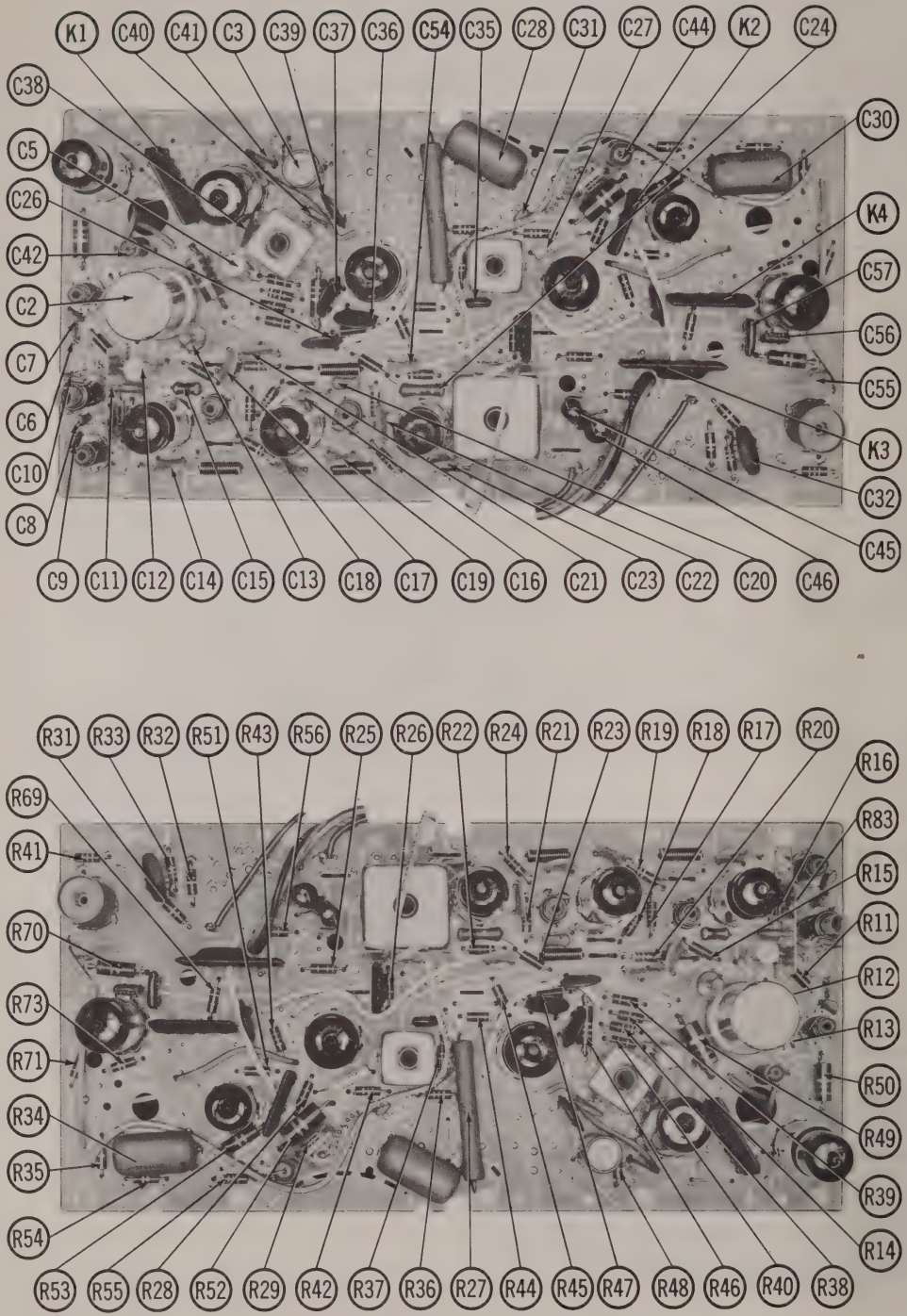
COILS (RF-IF)

ITEM No.	USE	SYLVANIA PART No.	NOTES
L201	Ant. Trans.	111-0063	Complete Ass'y.
L202	Ant.	570-0044	Channel 2-13, Includes Wafer Switch Ass'y
L203	RF	570-0046	"
L204	Osc.	570-0045	"

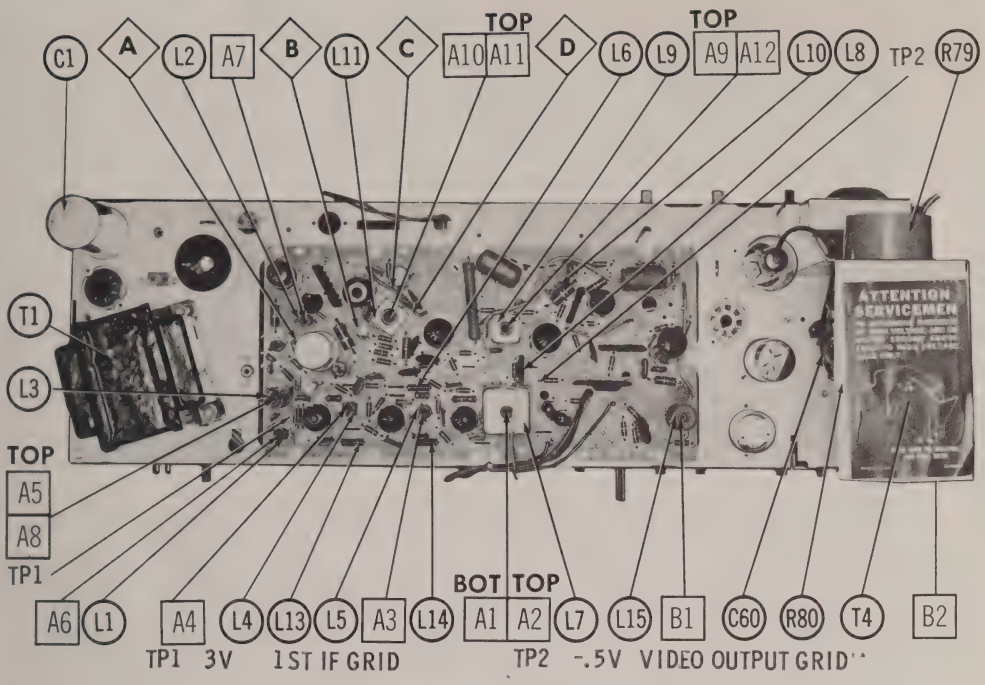
ITEM No.	USE	SYLVANIA PART No.	NOTES
L205	Fine Tuning	115-0007	
L206	RF Choke		
L207	Mixer Plate	118-0075	
L208	Fil. Choke		

MISCELLANEOUS

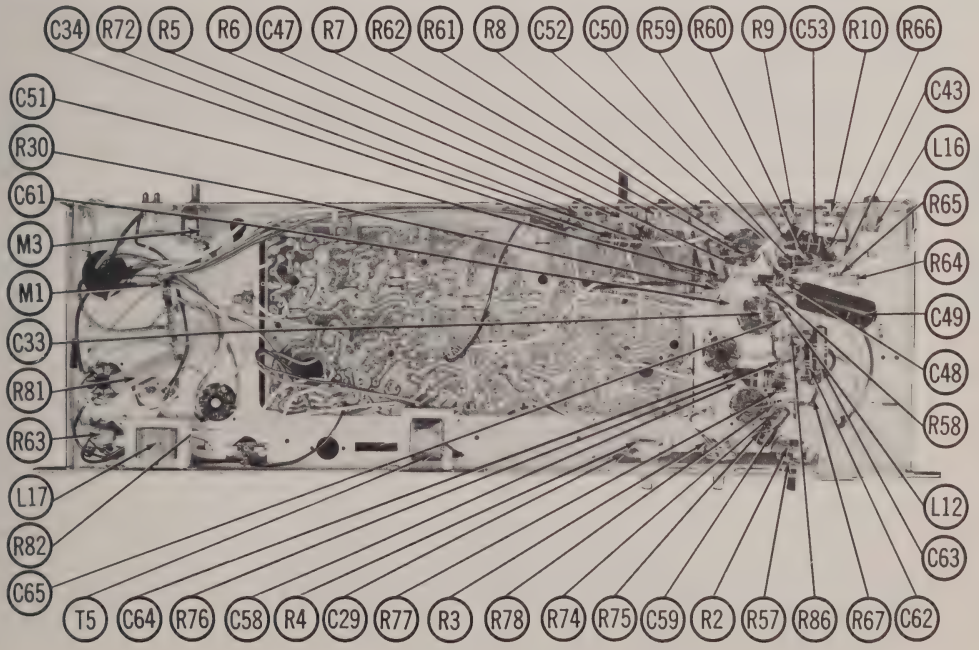
ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
	Shaft	493-0222	Channel Selector
	Plunger Assembly	493-0333	Fine Tuning
	Lever	492-0081	Fine Tuning
	Spring	496-0301	Fine Tuning Plunger
	Spring	496-0266	Fine Tuning Lever



TV PRINTED BOARD

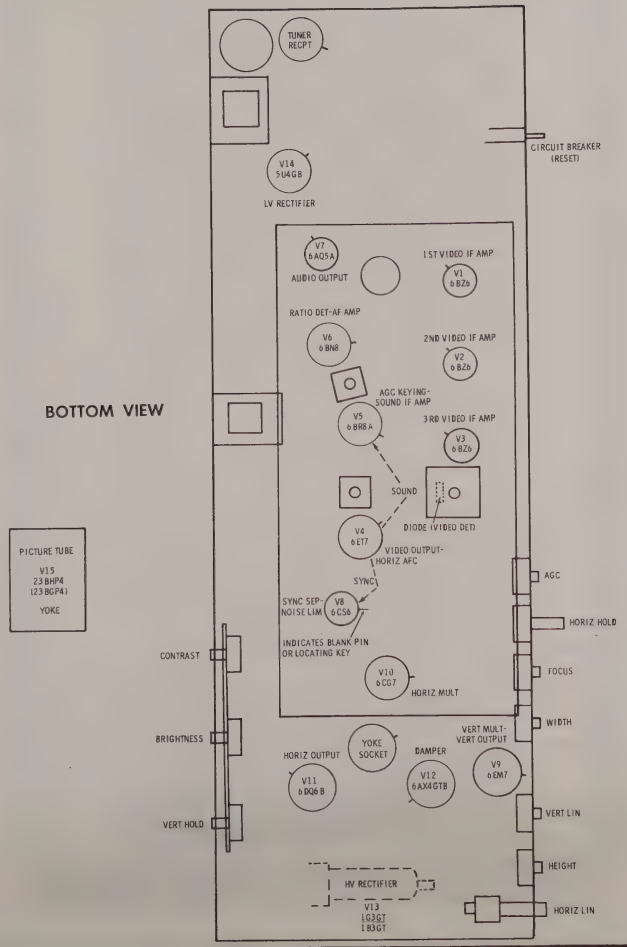


TV CHASSIS - TOP VIEW



TV CHASSIS - BOTTOM VIEW

TUBE PLACEMENT CHART
TV

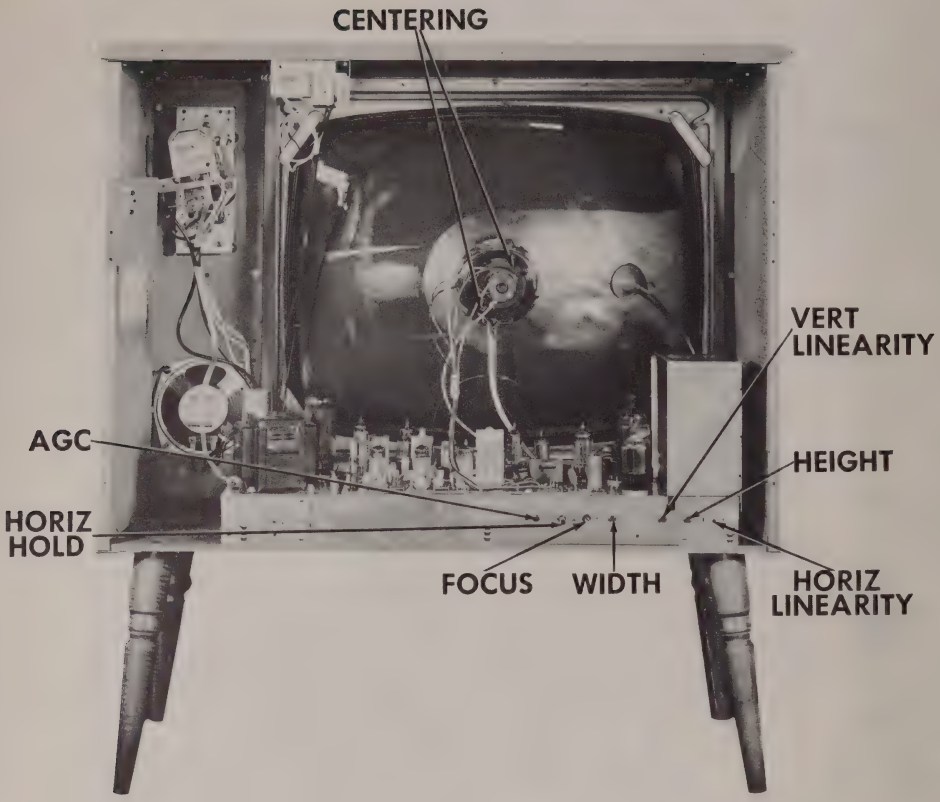


RESISTANCE MEASUREMENTS
TV

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	320K	240Ω	FIL	FIL	▪140Ω	▪140Ω	0Ω		
V2	6BZ6	26K	INF	FIL	FIL	†30Ω	†30Ω	▪39Ω		
V3	6BZ6	.1Ω	180Ω	FIL	FIL	†5400Ω	†5400Ω	0Ω		
V4	6ET7	330K	600K	0Ω	FIL	FIL	27Ω	2700Ω	†2700Ω	†6800Ω
V5	6BR8A	50K	300K	• 70K	FIL	FIL	†56K	†56K	220Ω	10K
V6	6BN8	INF	27K	INF	FIL	FIL	0Ω	†470K	10meg	0Ω
V7	6AQ5A	NC	270Ω	FIL	FIL	†1170Ω	†710Ω	470K		
V8	6CS6	†1meg	0Ω	FIL	FIL	†30K	†8500Ω	1.3meg		
V9	6EM7	• 1.8meg	†180Ω	470Ω	• 1.2meg	•† 3meg	0Ω	FIL	FIL	
V10	6CG7	†10K	780K	1200Ω	FIL	FIL	†100K	•110K	1200Ω	0Ω
V11	6DQ6B	TP	FIL	NC	• †11K	1meg	TP	FIL	0Ω	TOP CAP †8Ω
V12	6AX4GTB	TP	NC	¶ 1meg	NC	†60Ω	TP	FIL	FIL	
V13	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †293Ω
V14	5U4GB	NC	¶ 10K	NC	21Ω	NC	26Ω	NC	¶ 10K	
V15	23BHP4	FIL	100Ω	†560K	1.5meg	NC	NC	280K	FIL	
V201	6GK5	0Ω	6meg	FIL	FIL	†3900Ω	0Ω	0Ω		
V202	6EA8	†7400Ω	150K	0Ω	FIL	FIL	†3700Ω	†30K	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V14.
† MEASURED FROM PIN 3 OF V12.
▪ MEASURED FROM PIN 2 OF V2.

NC NO CONNECTION
TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn set on and tune in a TV signal, preferably with a test pattern.

Set Horizontal Hold to center of its range. Adjust Horizontal Frequency Slug (B1) until picture synchronizes horizontally.

With all other controls set for a normal picture, reduce width of raster until right edge of raster is visible. Adjust Horizontal Linearity Slug (B2), using a test pattern or crosshatch, until right hand side of picture is linear (same proportions as left hand side).

Adjust Width Control (R8) for a picture slightly wider than necessary to fill picture mask.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL - MODEL 23L48F

1. Remove 3 push-on type knobs from front (3 lower control knobs remain with cabinet — slide off when chassis is removed).
2. Remove rear cover (9 screws).
3. Disconnect yoke, tuner, halo-light, picture tube, volume control, and IF Input plugs; disconnect speaker and high voltage leads.
4. Disconnect ground strap to tuner (1 screw).
5. Remove 3 chassis bolts from bottom; remove chassis.

PICTURE TUBE REMOVAL

1. Remove chassis.
2. Remove 4 brackets and screws, inside cabinet, holding picture tube (to cabinet).
3. Remove picture tube.

PHOTOFACT® Folder

TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

MODEL 2DC1270A

TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

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TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

MODEL 2DC1270A

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Truetone Models 2DC1270A, 2DC1271A, 2DC1272A, 2DC1273A, 2DC1274A, 2DC1275A
SUPPLIER	Western Auto Supply Co., 2107 Grande Avenue, Kansas City, Missouri
TYPE SET	Television Receiver
TUBES	VHF - Fourteen, UHF - Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 150 Watts, 1.4 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

It is necessary to remove chassis and picture tube for access to safety glass (for cleaning or removal). See "Disassembly Instructions" on back page.

FUSE DEVICE

A 7.5Ω fusible resistor is used for low voltage power supply protection. (See "Tube Placement Chart" for location).

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

The AGC may be varied by means of a Range Control. (See "Tube Placement Chart" for location.)

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz Control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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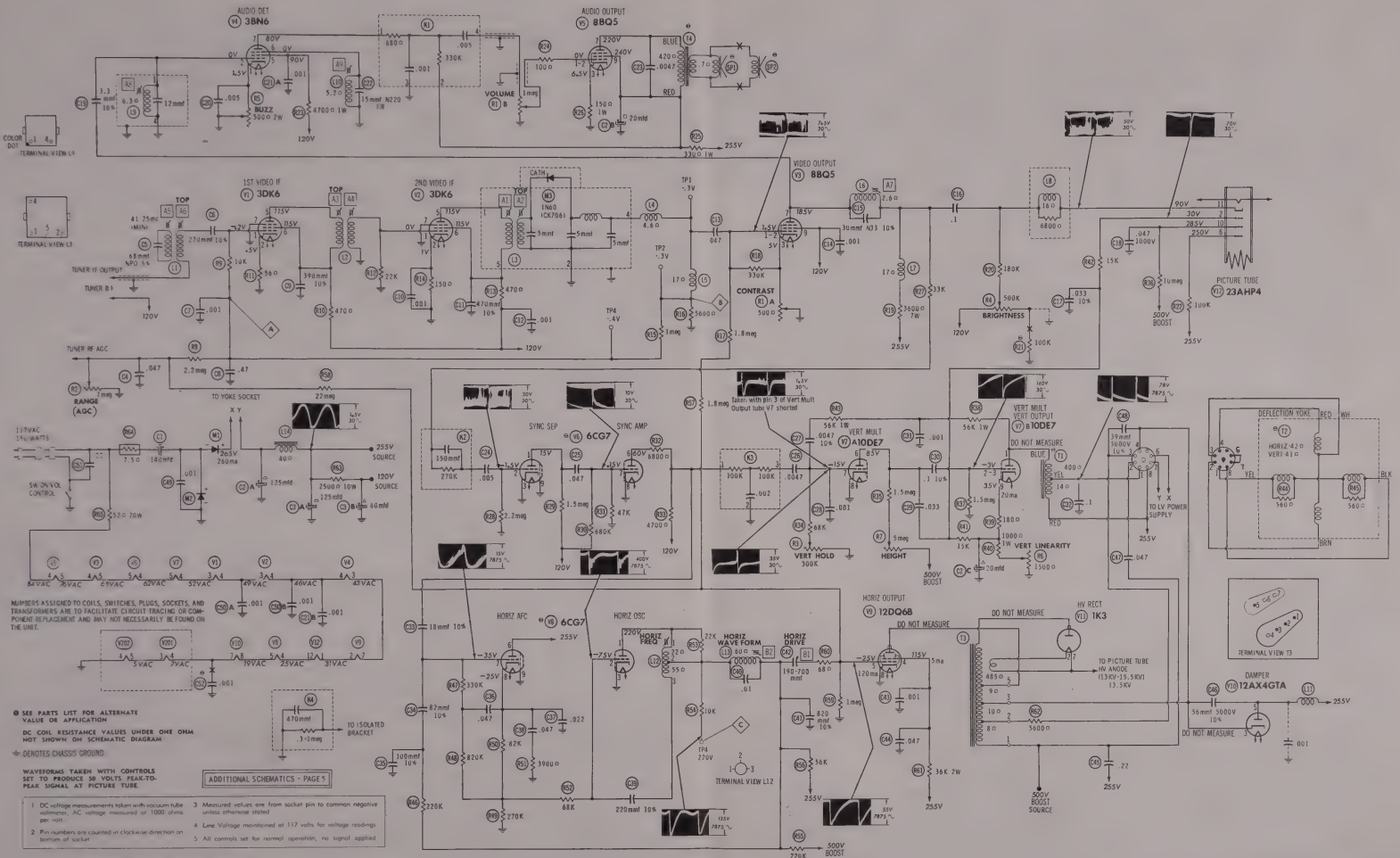
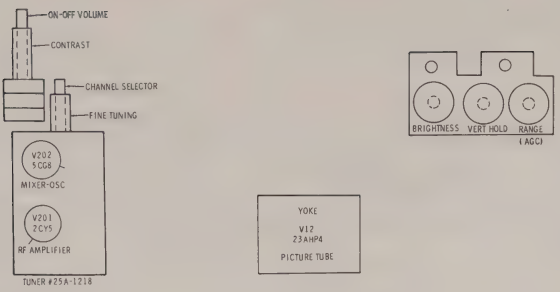
LA198

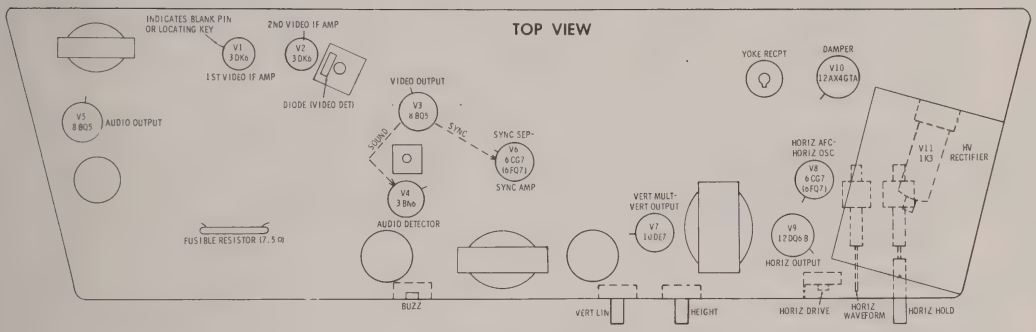
DATE 12 – 61 SET 560 FOLDER 2

SET 560 FOLDER 2


AUDIO DET V4 3BN6
AUDIO OUTPUT V5 8BQ5
VOLUME R1 B
BUZZ
1ST VIDEO IF V1 3DK6
2ND VIDEO IF V2 3DK6
CATH
TUNER IF OUTPUT
TUNER B+
TUNER RF AGC
RANGE (AGC)
TO YOKE SOCKET
VIDEO OUTPUT V3 8BQ5
CONTRAST R1 A
BRIGHTNESS
PICTURE TUBE V12 23AHP4
SYNC SEP V6 6CG7
SYNC AMP
VERT MULT V7 A 10DE7
VERT MULT V7 B 10DE7
VERT HOLD
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
HORIZ AFC V8 6CG7
HORIZ OSC
HORIZ FREQ
HORIZ WAVE FORM
HORIZ DRIVE
HORIZ OUTPUT V9 12DQ6B
HV RECT V11 1K3
DAMPER V10 12AX4GTA
TO PICTURE TUBE HV ANODE (13KV-15.5KV) 13.5KV
TO ISOLATED BRACKET
TO LV POWER SUPPLY
ADDITIONAL SCHEMATICS - PAGE 5
DO NOT MEASURE
500V BOOST
120V
255V
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
DENOTES CHASSIS GROUND
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961
TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

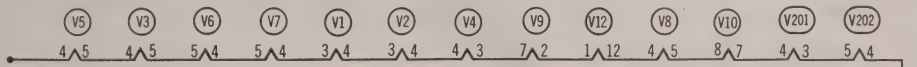
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor, Rectifiers M1, M2

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, M1, M2
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 7 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 2nd Video IF. Low side to chassis. Adjust output for 4VP-P on scope.	44.0MC (10MC Swp)	42.4MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls marker position and A2 controls gain and symmetry.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis. Adjust for 4VP-P on scope.	"	42.4MC 43.5MC 44.5MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 controls marker position and A4 controls gain and symmetry.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.4MC 43.5MC 44.5MC 45.75MC	"	"	A5, A6, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A5 to place 41.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of Video Output. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis. Use 0-10V AC scale.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength at the antenna terminals until a hiss is heard in the sound similar to super-regeneration.
Adjust A8, A9 and the Buzz control for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during adjusting, further reduce the signal strength.

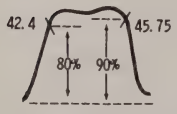


FIG. 1

FIG. 2

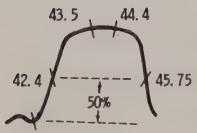
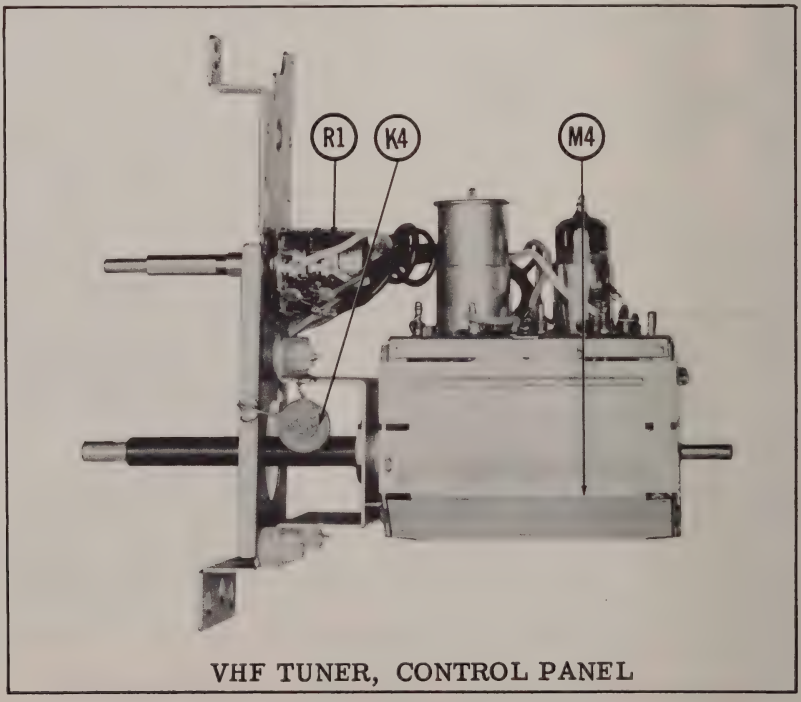
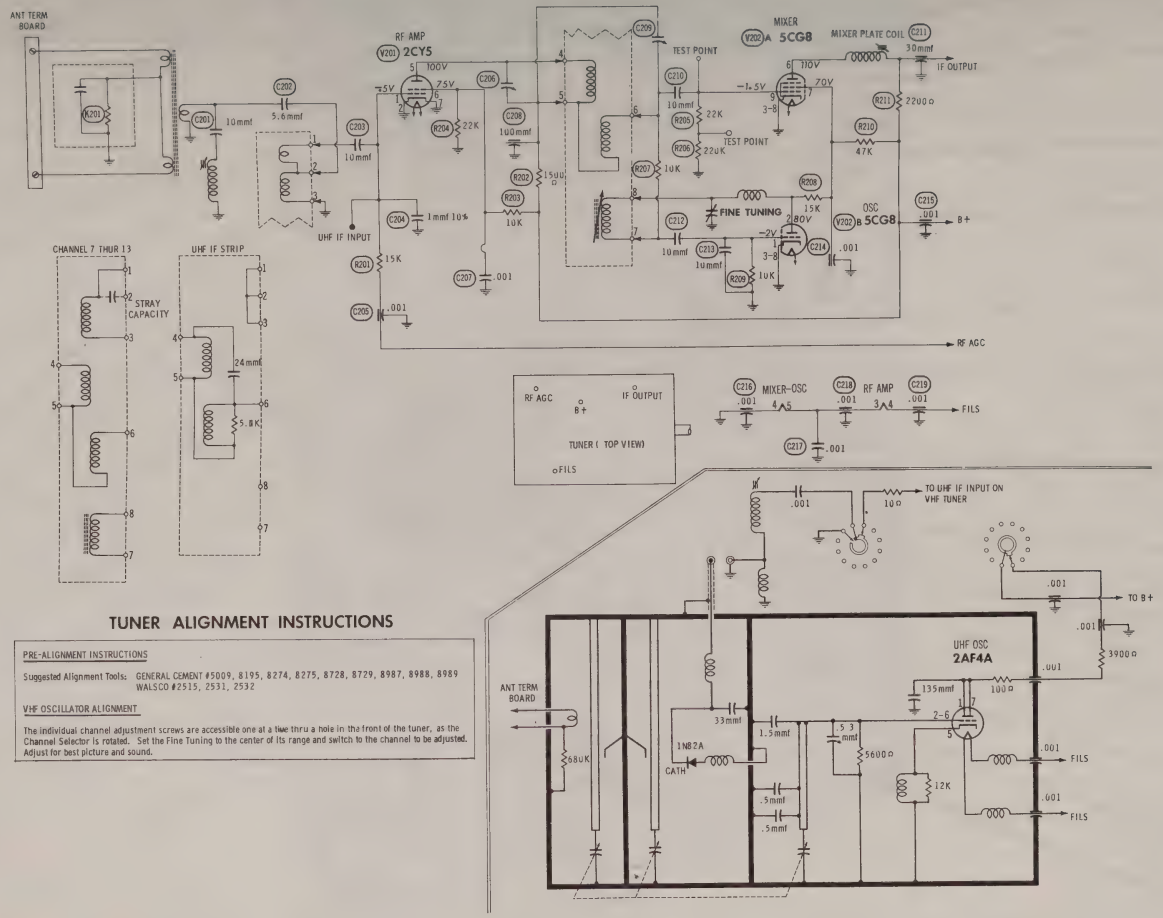


FIG. 3



VHF TUNER, CONTROL PANEL



TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF OSCILLATOR ALIGNMENT

The individual channel adjustment screws are accessible one at a time thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to the channel to be adjusted. Adjust for best picture and sound.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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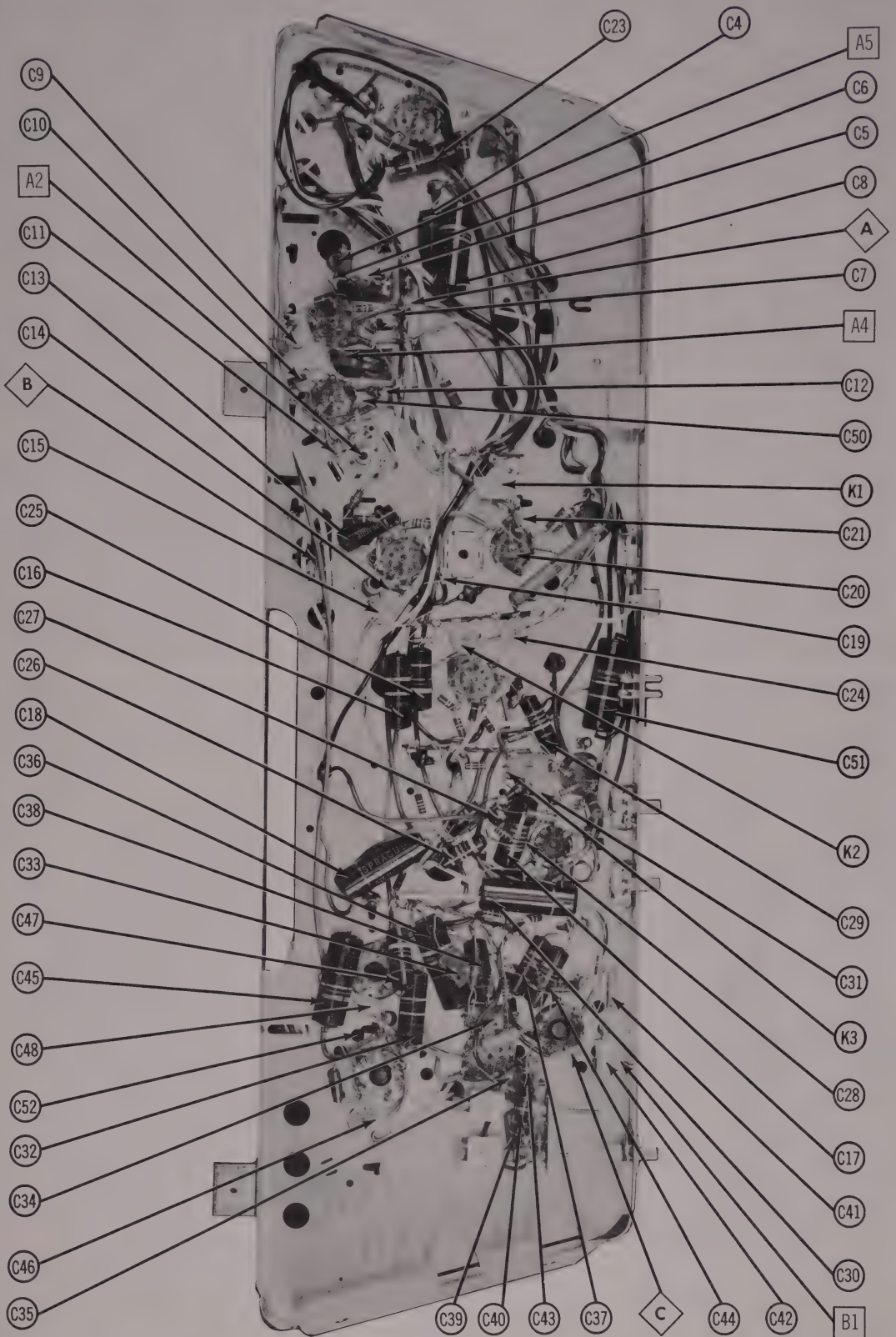
VHF TUNER 25A1218, UHF TUNER 25A1221-2, UHF SWITCH ASSEMBLY 25A523



CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC. IDENT.

TRUETONE MODELS 2DC1270A/1271A/
1272A/1273A/1274A/1275A

CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No	GENERAL ELECTRIC • USE	GENERAL ELECTRIC • TYPE	ITEM No	RAYTHEON • USE	RAYTHEON • TYPE
V1	1st Video IF Amp.	[illegible]	V7	Vert. Mult. - Vert. Output	10DE7
V2	2nd Video IF Amp.	3DK6	V8	Horiz. AFC - Horiz. Osc.	6CG7 (6FQ7) *
V3	Video Output	[illegible]	V9	Horiz. Output	12DQ6B
V4	Audio Detector	[illegible]	V10	Damper	12AX4GTA
V5	Audio Amp.	[illegible]	V11	HV Rectifier	1K3
V6	Sync Sep. - Sync Amp.	6CG7 (6FQ7) *			

* Alternate

PICTURE TUBE

ITEM No	REPLACEMENT DATA: TRUETONE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V12	23AHP4	23AHP4 ①	23AHP4 ①		23AHP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	140	150	45X421	[illegible]	XA0261	XC1-16	WP125.5	TMS-1370	TVL-1426
C2A	▲125	300	45X431	AF164-02-60	XC0753. 2	XC4-14	FP330. 34	TMQ-4694	TVLS-3574.3*
B	▲ 20	300							
C	▲ 30	50							
C3A	▲125	300	45X467	AFH3-990-82	D0046	XC3-41	WP219	TMD-2430	TVL-3574.6
B	▲ 60	300							

* Not normally in distributor's stock. Available thru distributor on order to the manufacturer.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	EUMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C5	68	NPO 5%		DTZ-68	DD-68	CUQ6SC		CNQ-468	10TCC-Q68
C6	270	10%		DI-270	DD-271	CUQ72T	CCD-271	GP327	10TS-T27
C7	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.47	200V		P288N-47		CUB2P47	4DP-5-474	GEM-2047	2TM-P47
C9	390	10%		DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39
C10	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	470	10%		DI-470	DD-471	S2RST47	CCD-471	GP347	10TS-T47
C12	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C14	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	30	N33 10%							
C16	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C17	.033	200V 10%		V84C2S33-10%		CUB2S33	4DP-2-333	GEM-1613	2TM-S33
C18	.047	1000V		P10S8N-047		CUB1D47	1SDP-5-473	GEM-10147	10TM-S47
C19	3.3	10%	TCZ-3R3	NPO-3I 3. 3	TCZ-3R3	C1CY33C	CCTO-3R3	CNO-S33	10TCC-Y33
C20	.005		DD-502	BPD-005	DD-502	BYA10D6	CCD-502	B-250	5HK-D50
C21A	.001			BPD-2X001	DD2-102	BYC6DD1	CCD-102	B2XH10	5HK-2DI0
B	.001						CCD-102		
C22	15	N220 5%					5		10TCR-Q15
C23	.0047	600V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C24	.005			BPD-005	DD-502	BYA10D1	CCD-502	B-250	5HK-D47
C25	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C26	.0047	400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C27	.0047	400V 10%		V84C4D47-10%			P.MSD47	6DP-1-472	GEM-16247	6TM-D47
C28	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C29	.033	600V		P688N-033	DD-303	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C30	.1	600V 10%		V84C6P1-10%			P.MSDI	6DP-4-104	GEM-1001	6TM-P10
C31	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C33	18	10%		1469-000018	TCZ-18	22RSQ18	CM-19B-180K	CNO-418	MS-418
C34	82	10%		1469-000082	TCZ-82	22RSQ82	CM-19B-820K	CNO-482	MS-482
C35	100	10%		1469-0001	TCZ-100	22RST1	CM-19B-101K	MCB235	MS-310
C36	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C37	.022	200V		P288N-022	DD-223	CUB2S22	4DP-2-223	GEM-4122	2TM-S22
C38	.047	200V		P288N-047	DD-503	CUB4S22	4DP-3-473	GEM-4147	2TM-S47
C39	220	10%		1469-00022	TCZ-220	22RST22	CM-19B-220K	CNO-322	MS-322
C40	.01	400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C41	820	10%		1469-00082		5RST82	CM-19B-821K 469	MCB251	MS-382
C42	190-700		#7A276						
C43	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C44	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C45	.22	400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C46	56	5000V 10%	#47X755					6DY-456	
C47	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48	39	5000V 10%	#47X756					6DY-439	
C49	.001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C50A	.001						CCD-102		
B	.001			BPD-2X001	DD2-102	BYC6DD1	CCD-102	B2XH10	5HK-2XDI0
C51	.22	400V		P488N-22		CUB2P22	4DP-5-224	GEM-4022	4TM-P22
C52	.001		Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

\# Truetone Part Number Note 1. May not be used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500Ω		78X37	F1-1				Contrast
B	1meg			R2-1	RTV-T10		■ UE6143-S	Volume
C	Switch			KR-1				Power Off-On
R2	7meg		40X516					Range (AGC)
	(Open at Low End)							
R3A	300K		40X515	B-50		A47-300K-S	QU-131	TA254L	Vert. Hold
B	Shaft			Not Req.		F5-3	Not Req.	Not Req.	
R4A	500K		40X496	B-59		A47-500K-S	QU-133	TA85L	Brightness
B	Shaft			Not Req.		F8-3	Not Req.	Not Req.	
R5	500Ω	2(WW)	40X472				110-600	PFL-600	Buzz

CONTROLS (cont)

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R6A	1500Ω		40X464-3	TT-511	B47-1500-S	B11-109	PTA1532	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R7	5meg		40X491-2	TT-67	B47-5meg-S	HLC-4	PTA65L	Height

■ "STA-LOC" Equivalent: FC52L, RU16L, OS1687, IS2350, U841.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	2.2meg			
R9	10K			
R10	470Ω			
R11	56Ω			
R12	22K			
R13	470Ω			
R14	150Ω			
R15	1meg			
R16	5600Ω			
R17	1.8meg			
R18	330K			
R19	3600Ω 7W	PW7-3600	7W-SQ-3600	
R20	180K			
R22	100K			Note 1
R22	100K			
R23	4700Ω 1W			
R24	100Ω			
R25	330Ω 1W			
R26	150Ω 1W			
R27	33K			
R28	2.2meg			
R29	1.5meg			
R30	680K			
R31	47K			
R32	6800Ω			
R33	4700Ω			
R34	68K			
R35	1.5meg			
R36	10meg			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R37	1.5meg			
R38	56K 1W			
R39	180Ω			
R40	1000Ω 1W			
R41	15K			
R42	15K			
R43	56K 1W			
R44	560Ω			
R45	560Ω			
R46	220K			
R47	330K			
R48	820K			
R49	270K			
R50	82K			
R51	3900Ω			
R52	68K			
R53	22K			
R54	10K			
R55	220K			
R56	56K			
R57	1.8meg			
R58	22meg			
R59	1meg			
R60	68Ω			
R61	36K 2W			
R62	5600Ω			
R63	2500Ω 10W	PW10-2500	10W-SQ-2500	
R64	7.5Ω	FR7. 5	R7	Fusible #43X302
R65	52Ω 20W			

Note 1. May not be used in some versions. \# Truetone Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
K1	Volume Comp.	.001mfd, .005mfd, 680Ω, 330K	76X16	Centralab PC-406
K2	Sync Sep. Grid	150mmf, 270K	76X15	Aerovox PA-421 Centralab PC-60
K3	Vert. Integrator	.002mfd, 100K, 100K	76X19	
K4	Isolation	470mmf, .3-1meg	76X18	Centralab RC-471 Sprague ACI-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No	NOTES
L1A	1st Video IF	9A2438	TV-156			TC250	① Complete Assembly
B	41.25MC Trap						
L2	2nd Video IF	9A2444				T279	② Wound on 6800Ω Resistor.
L3A	3rd Video IF	9A2435 ①	TV-180	6176	RTC-8593	TG239	
B	Peaking (30uh)		TV-180	6176	RTC-8593	T301	
L4	Peaking (30uh)	9A2375	TV-180	6176	RTC-8593	T301	† Parallel with 6800Ω Resistor.
L5	Peaking (290uh)	36A22	TV-185	6155	RTC-8587	T318	
L6	4.5MC Trap	9A2366	TV-151	1469	RTC-8602	T249	
L7	Peaking (325uh)	36A27	TV-200	6132	RTC-8577	T319	
L8	Peaking (270uh)	36A45 ②	TV-198 †	6130 †	RTC-8578 †	T316 †	
L9	Sound IF	9A2434	TV-154	1469-A	RTC-8604	T247	
L10	Quadrature	9A2367	TV-121	1480	RTC-8605	T251	
L11	RF Choke (1.5uh)	9A2380	BC-562	4604	RTC-8516	T856	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L12	Horiz. Osc.	9A2461						T104	
L13	Horiz. Waveform	9A2372	MWC-12	6315	WC-18	HS-5	WLC-3	T110	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ⁰(u)	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L14	.260A	40Ω	.9 Hy.	52X95-12	C-4084	C-2343	26C44	C-34X	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output Alt. Vert. Output	51X207-1A 51X207	A-2855	VO-108	26S73 ①	A-142X	

TRANSFORMERS (SWEEP CIRCUITS) (cont)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Yoke (Horiz. 24MH) (90⁰) (Vert. 40MH) Alt. Yoke Rear Cover and Centering Device Yoke Clamp	9A-2482-1A 9A-2482	MDF-126	DY-38A ③ †	Y-45 ④	Y-45 & NW1 ④ YC-112	①Use Anti-Pincushion Correction Magnets (Packaged with Yoke).
T3	Horiz. Output	30X611 53X399	HVO-174 *				*Connect same as original.

① Drill new mounting hole(s).
② Connect Yoke Terminal #2 to Yoke Plug Pin #4; Yoke Terminals #1 and #3 to Yoke Plug Pin #3; Yoke Terminal #7 to Yoke Plug Pin #2; Yoke Terminal #4 to Yoke Plug Pin #; Yoke Terminal #6 to Yoke Plug Pin #6.
③ Connect Yoke Terminal #3 to Yoke Plug Pin #4; Yoke Terminals #7 & #2 to Yoke Plug Pin #3; Yoke Terminal #1 to Yoke Plug Pin #2; Yoke Terminal #4 to Yoke Plug Pin #; Yoke Terminal #6 to Yoke Plug Pin #6.
④ Connect Yoke Terminal #3 to Yoke Plug Pin #4; Yoke Terminals #7 and #2 to Yoke Plug Pin #3; Yoke Terminal #1 to Yoke Plug Pin #2; Yoke Terminal #6 to Yoke Plug Pin #; Yoke Terminal #4 to Yoke Plug Pin #6.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	6500Ω	3-4Ω	51X206B ①	A-3026	A-3877	24S51	S-49X	①Alternate Pt. #51X206.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: TRUETONE PART No.	QUAM PART No.	NOTES
SP1	4" x 6"	PM	6-8Ω	12A586A ①	46AI26.4	① Some versions may use single 5" speaker for SP1 & SP2
SP2	4" x 6"	PM	6-8Ω	12A586A ①	46AI26.4	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: TRUETONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.260A	66X23	1N1763	40H	
M2	.260A	66X23	1N1763	40H	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: TRUETONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M3	1N60 CK706 *	1N60 CK706 *		1N60 1N60	* Alternate

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	[illegible]	VHF Complete, STANDARD COIL REPLACEMENT #GG8-4221
	Tuner	25A1321-2	UHF
	Switch	25A523	UHF Adapter
	Magnet	2A476	Beam Alignment (May be used with some picture tubes)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

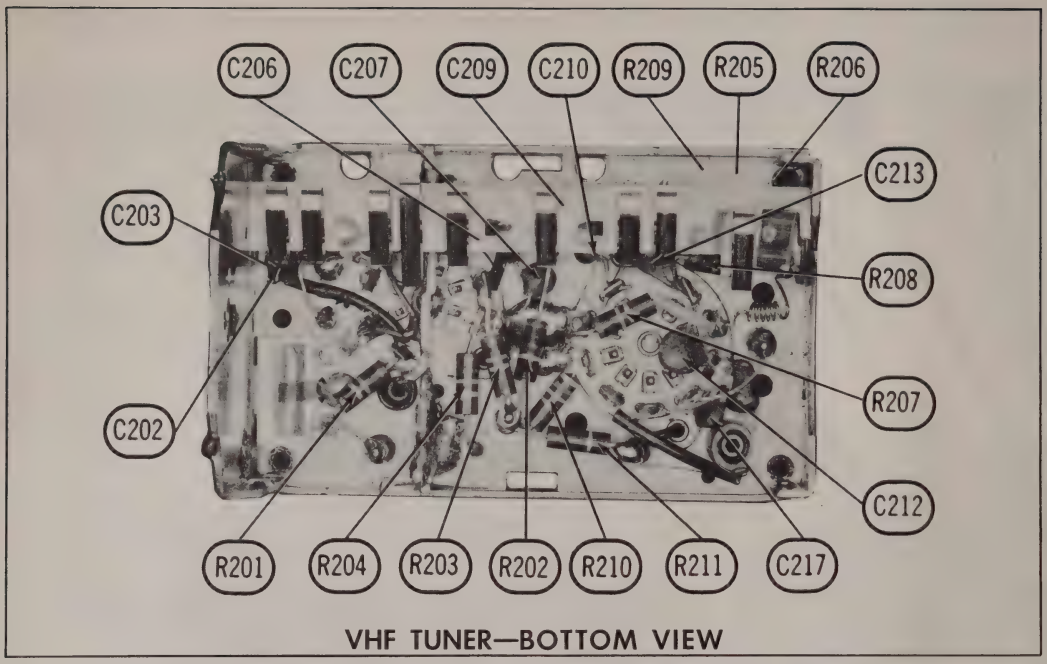
NAME	PART NO.	DESCRIPTION
Safety Glass	26AT12	Complete Assembly
Mask	4X1551-3	Mahogany
Mask	4X1551-4	Walnut
Mask	4X1551-5	Maple
Knob	10A998-3	UHF Tuning, Mahogany & Walnut
Knob	10A998-2	UHF Tuning, Maple
Knob	10A998-1	UHF Tuning, Indicator
Knob	10AI044	Fine Tuning
Knob	10AI015-3	On-Off Volume, Mahogany & Walnut
Knob	10AI015-1	On-Off Volume, Maple
Knob	10AI043-1	Brightness & Vertical Range, Maple
Knob	10AI043-2	Brightness & Vertical Range, Mahogany & Walnut
Knob	20XI661	Compensation Ring for Brightness, Vertical Range, Horizontal Hold knobs
Knob	10AI014-1	Contrast
Knob	10AI018-1	Horizontal Hold (For Horizontal Oscillator Coil Slug)
Shaft	10AI019	Extension for Horizontal Hold knob
Escutcheon	26A747	Secodary Control Assembly, Mahogany & Walnut
Escutcheon	26A749	Dial & Background Assembly, Mahogany & Walnut
Escutcheon	26A751	Channel Selector Assembly, Maple
Escutcheon	26A748	Dial & Background Assembly, Maple
Escutcheon	26A745	Secodary Control Assembly, Maple
Cabinet	14X710-1	Back

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TRUETONE MODELS 2DC1270A/ 1271A/1272A/1273A/1274A/1275A

FOLDER 2



VHF TUNER—BOTTOM VIEW

VHF PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	2CY5	V202	Mixer - Osc.	5CG8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C202	5.6							10TCC-V56
C203	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C204	1	10%	NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C205	.001		EF-001	MFT-1000		CCF-102	CT280A	
C206								
C207	.001		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C208	100		EF-0001	MFT-100				
C209								
C210	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C211	30							
C212	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C213	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C214	.001		EF-001	MFT-1000		CCF-102	CT280A	
C215	.001		EF-001	MFT-1000		CCF-102	CT280A	
C216	.001		EF-001	MFT-1000		CCF-102	CT280A	
C217	.001		BPD-001	DD-102	BYA10D1	CCD-102		10TS-D10
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	

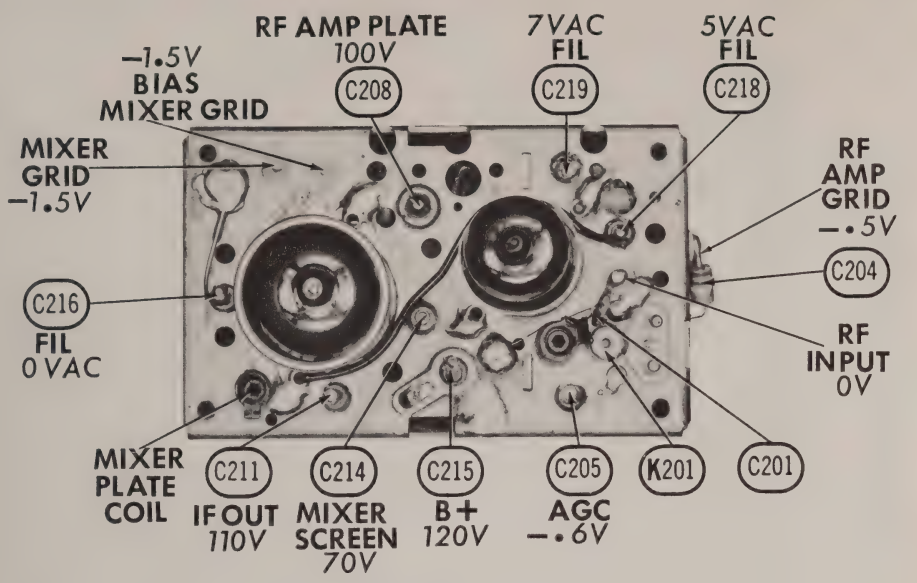
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

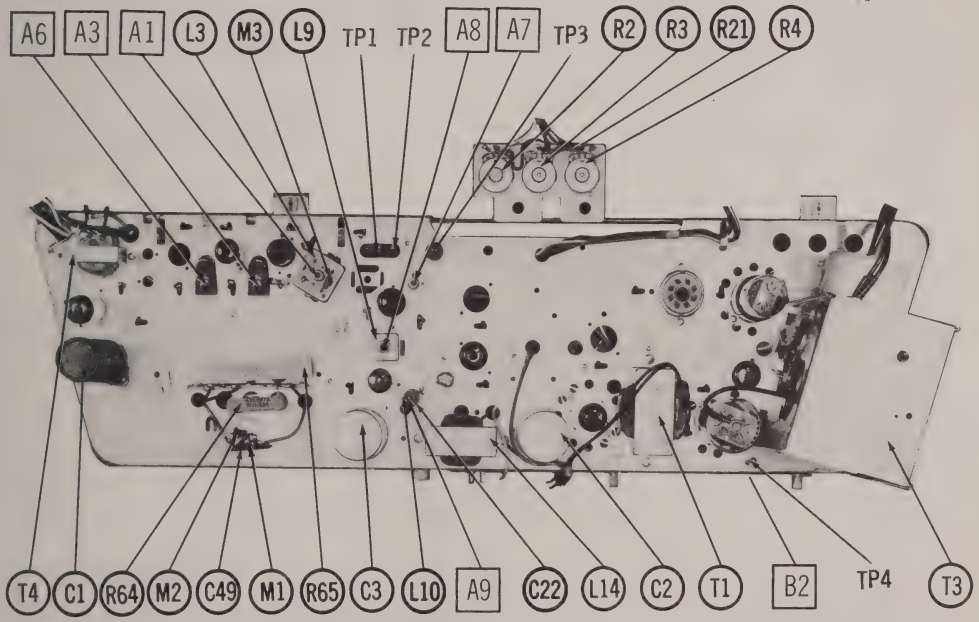
ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	15K				R207	10K			
R202	1500Ω				R208	15K			
R203	10K				R209	10K			
R204	22K				R210	47K			
R205	22K				R211	2200Ω			
R206	220K								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
K201	Antenna Filter			



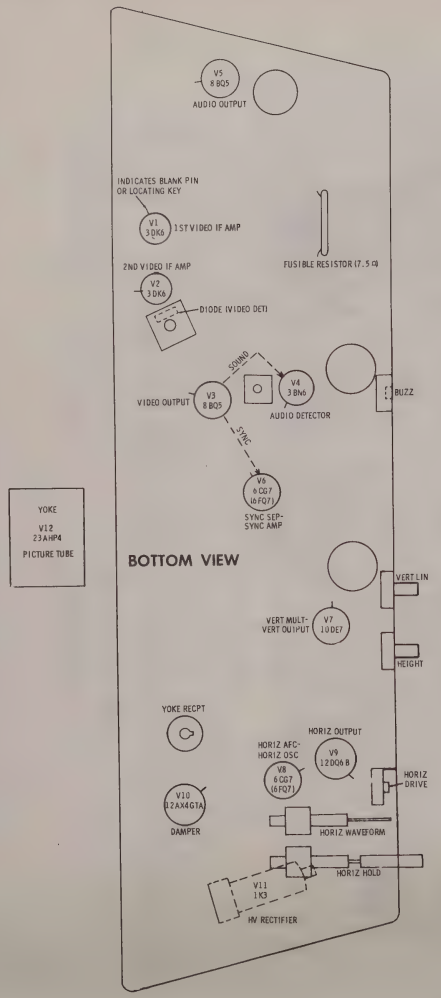
VHF TUNER - TOP VIEW



TP1 -.3V VIDEO DET OUTPUT
TP2 -.3V VIDEO DET LOAD
TP3 -.4V IF AGC
TP4 220V HORIZ WAVEFORM

CHASSIS - TOP VIEW

TUBE PLACEMENT CHART

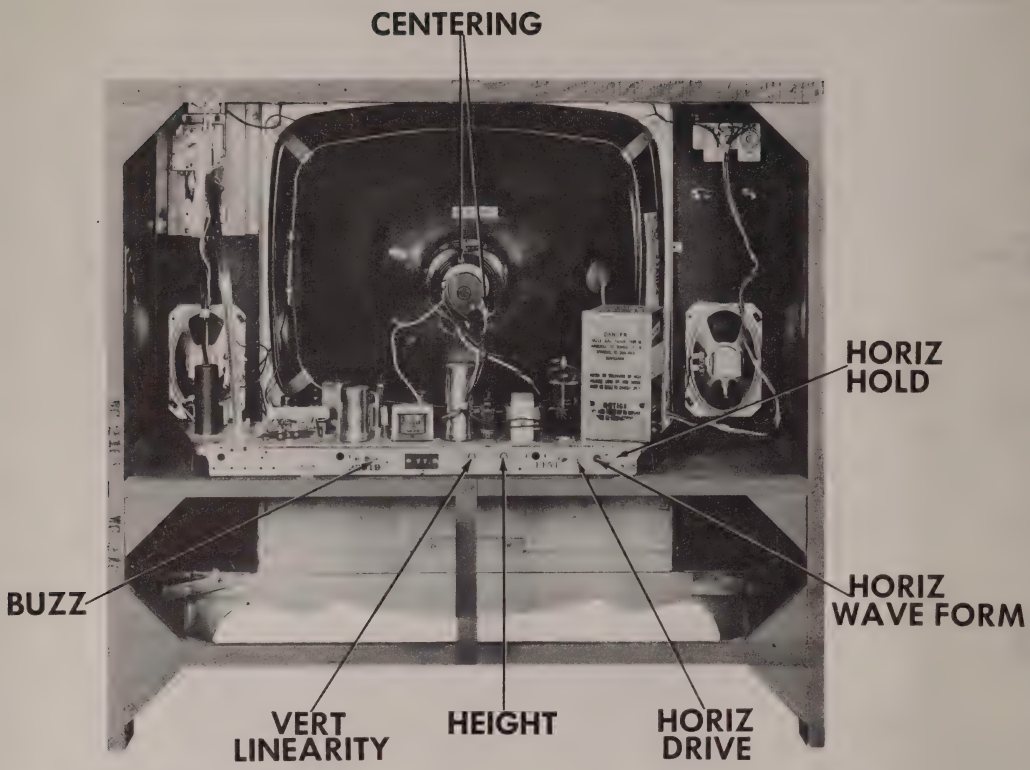


RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3 DK6	750K	56 Ω	12 Ω	11.5 Ω	†3000 Ω	†3000 Ω	0 Ω		
V2	3 DK6	.3 Ω	150 Ω	11.5 Ω	11 Ω	†3000 Ω	†3000 Ω	0 Ω		
V3	8 BQ5	NC	320K	• 200 Ω	17.5 Ω	16 Ω	NC	†3600 Ω	NC	†2500 Ω
V4	3 BN6	• 220 Ω	6.3 Ω	10.5 Ω	11 Ω	†7200 Ω	5.2 Ω	†330K		
V5	8 BQ5	• 600 Ω	NC	150 Ω	17.5 Ω	20 Ω	NC	†790 Ω	NC	†370 Ω
V6	6 CG7	†1.5 meg	2.2 meg	0 Ω	14.5 Ω	16 Ω	†14K	47K	0 Ω	0 Ω
V7	10 DE7	†454 Ω	NC	1.5 meg	12 Ω	14.5 Ω	• †2.7 meg	• 170K	0 Ω	• 1800 Ω
V8	6 CG7	†56K	400K	0 Ω	6.5 Ω	5 Ω	†40 Ω	1.4 meg	410K	0 Ω
V9	12 DQ6 B	TP	7.5 Ω	TP	†36K	1 meg	TP	10.5 Ω	0 Ω	TOP CAP †9 Ω
V10	12AX4GTA	TP	NC	¶ 320K	NC	†40 Ω	TP	2 Ω	5 Ω	
V11	1K3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †495 Ω
V12	23AHP4	7.5 Ω	• 32K	Pin 6 †100K	Pin 10 † 10 meg	Pin 11 • 350K	Pin 12 6.5 Ω			
V201	2CY5	• 350K	0 Ω	1.5 Ω	2 Ω	†4000 Ω	†12K	0 Ω		
V202	5CG8	15K	†13K	0 Ω	0 Ω	11.5 Ω	†4700 Ω	†18K	0 Ω	240K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION
TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the Contrast fully counterclockwise and the Brightness clockwise so that the picture appears to be washed out.

Turn the Horizontal Drive Trimmer (B1) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counterclockwise until the white bar disappears.

Connect the vertical amplifier of the scope thru a low capacity probe to point ⟨C⟩. Low side to chassis.

Adjust the Horizontal Waveform Slug (B2) until the round and sharp peaks of the waveform are equal in amplitude. See Figure 4. Keep the picture in sync during this adjustment with the Horizontal Hold.

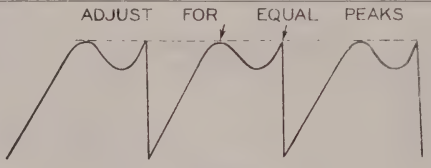


FIG. 4

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs on front.
2. Remove 10 screws in rear cover. Remove rear cover.
3. Remove 4 chassis bolts.
4. Remove 4 screws holding tuner bracket. Remove tuner.
5. Disconnect speaker leads, yoke plug, picture tube socket, and high voltage lead.
6. Remove 2 screws holding control panel. Remove panel.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder

PRODUCTION CHANGE BULLETIN

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 526

V-M Models 207, 307 were covered in PHOTOFACT Folder 12 - Set 526.

Model 806 is electrically similar except for the following changes. The manufacturer also uses these same changes for Models 207, 307 in later production.

COMPONENT CHANGES

K1 or K2 is deleted. The one remaining couplate is then split up to use one half on each channel. A .002mfd Capacitor and a 180K Resistor in series is then added to each channel to replace the couplate that was removed.

C5 is increased from 100mmf to 200mmf.

C15 is increased from 100mmf to 200mmf.

R2A, B Balance Control has been deleted and another Balance Control (Part #12462) is used in the grid circuit of V2 and V3.

Pin 7 of V1A connects to C7.

Pin 2 of V1B connects to C17.

A 6.8meg Resistor is added between Pins 7 and 8 of V1A.

A 6.8meg Resistor is added between Pins 2 and 3 of V1B.

R11 is deleted

R20 is deleted.

C3 is deleted.

R18 is deleted.

R17 connects to the junction of R9 and C2.

R9 is decreased from 3900Ω to 2200Ω.

R12 is deleted.

R21 is deleted.

The Balance Control (Part #12462) is then connected between Pin 5 of V2 and V3.

R13 is deleted.

Pin 8 of V2 and V3 are disconnected from each other.

Pin 8 of V2 has a 180Ω Resistor and a 50mfd @ 25V Electrolytic Capacitor in parallel connected to ground.

Pin 8 of V3 has a 180Ω Resistor and a 50mfd @ 25V Electrolytic Capacitor in parallel connected to ground.

A schematic diagram showing these changes is given in this bulletin.

V-M MODELS 207, 307, 806

PRODUCTION CHANGE BULLETIN

(Continued On The Reverse Side)

SET 560 FOLDER 3

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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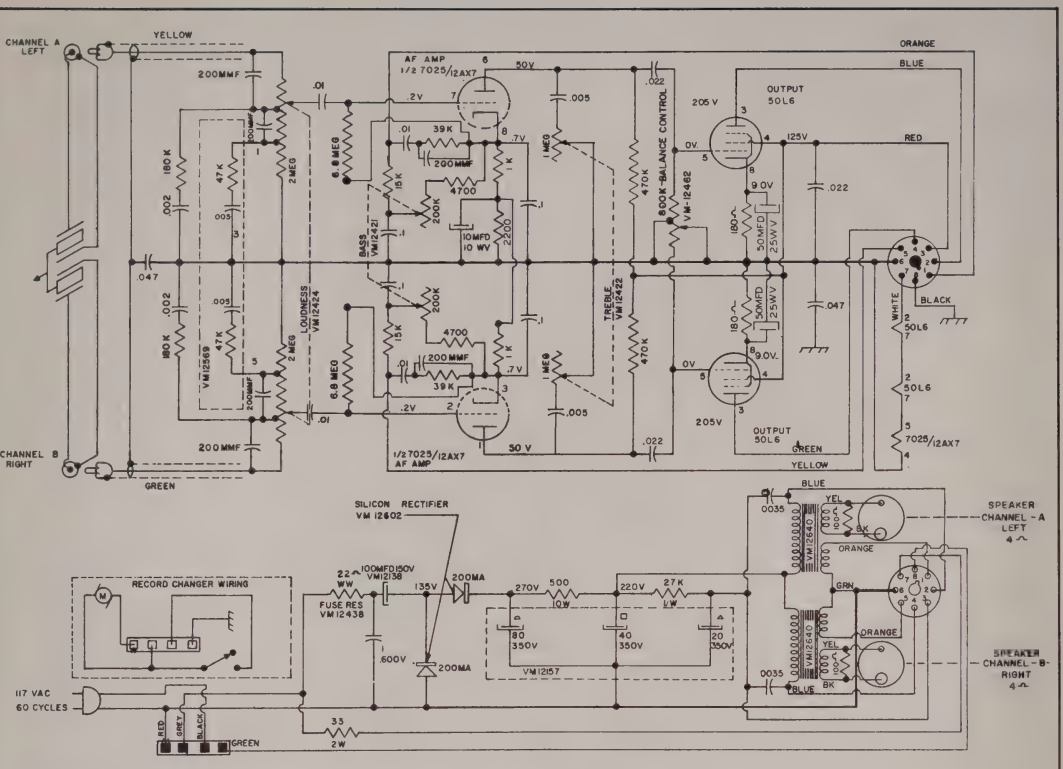


NOTES
1. ALL VOLTAGES TAKEN WITH 11 MEGOHM VTVM ±5% LOUDNESS CONTROL MAX CCW FOR VOLTAGE READINGS
2. ALL CAPACITANCE VALUES IN MF UNLESS OTHERWISE SPECIFIED
3. ALL RESISTANCE VALUES IN OHMS, 1/2 WATT 10% UNLESS OTHERWISE SPECIFIED. K=1000

V-M MODEL 806

Schematic Diagram Courtesy of V-M Corporation

Airline Models WG-2810A, WG-2811A, WG-2815A, WG-2816A, WG-2817A were covered in PHOTOFACT Folder 3 - Set 537.

Models WG-2815B, WG-2816B, WG-2818A are electrically similar except for the following changes.

WG-2815B, WG-2816B

FM TUNER CHANGE

The FM Tuner is changed from Part #25A1203 to Part #25A1215. A schematic diagram showing the new FM Tuner is given in this bulletin.

WG-2818A

COMPONENT CHANGES

T1 (Power Transformer) is changed to Part #53X396.

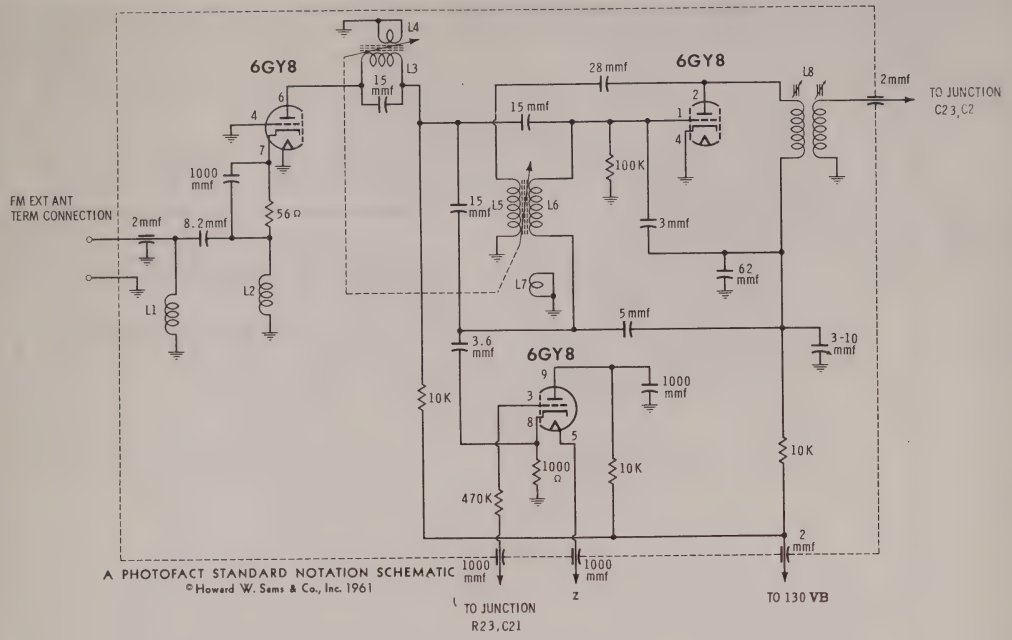
REVERBERATION AMPLIFIER ADDED

With the addition of the Reverb. Amp. an additional Power Socket is added. The following changes are made to facilitate the socket.

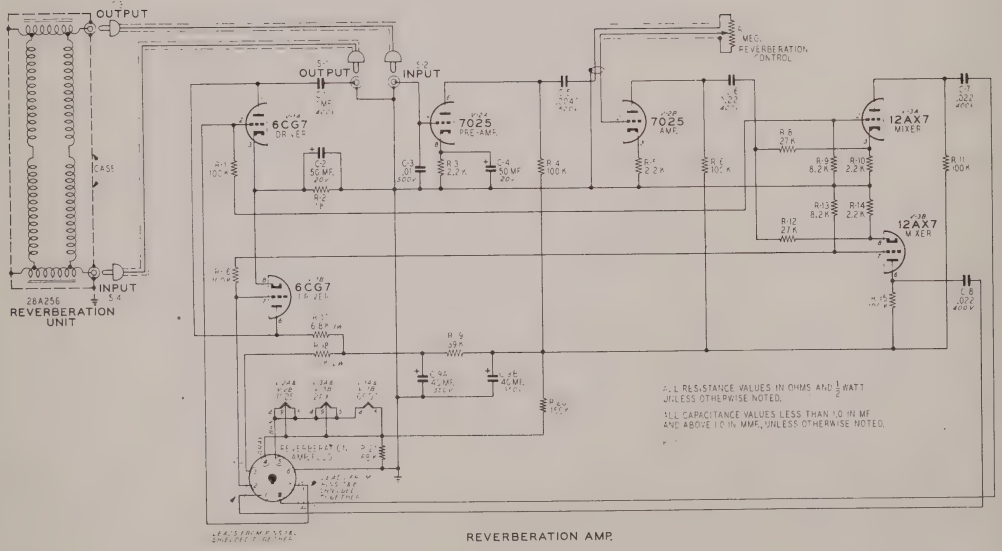
The line connecting C50 and R3B (Treble Control) is broken. The junction of the Treble Control and R50 connects to Pin 1 of the Reverb. Amp. socket. The open end of C50 connects to Pin 2. Pin 3 is connected to Pin 8 of V14 (5U4GB). The extra Secondary Winding of the new Power Transformer connects across Pins 4 and 5 of the Reverb. Amp. socket. Pin 6 is grounded. The line connecting C42 and R3A (Treble Control) is broken. The junction of the Treble Control and R36 connects to Pin 8 of the Reverb. Amp. socket. The open end of C42 connects to Pin 7.

A schematic diagram showing the Reverberation Amplifier is given in this bulletin.

(Continued On The Reverse Side)



AIRLINE FM TUNER 25A1215



Schematic Diagram Courtesy of Montgomery Ward & Company

PHOTOFACT® Folder with CIRCUITRACE®

ACME MODEL
Tops All CH-620

ACME MODEL
Tops All CH-620

ACME MODEL
Tops All CH-620

TRADE NAME	Acme Model "Tops All" CH-620
IMPORTER	Avon International Corp., 200 W. 34th Street, New York 1, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	6 Volts DC RATING 5MA@6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC 20MA@6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5...GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC	"	A6	"
5.	"	600KC	600KC	"	A7	Adjust for maximum output by moving antenna coil turns along ferrite core. Repeat Steps 2 thru 5.

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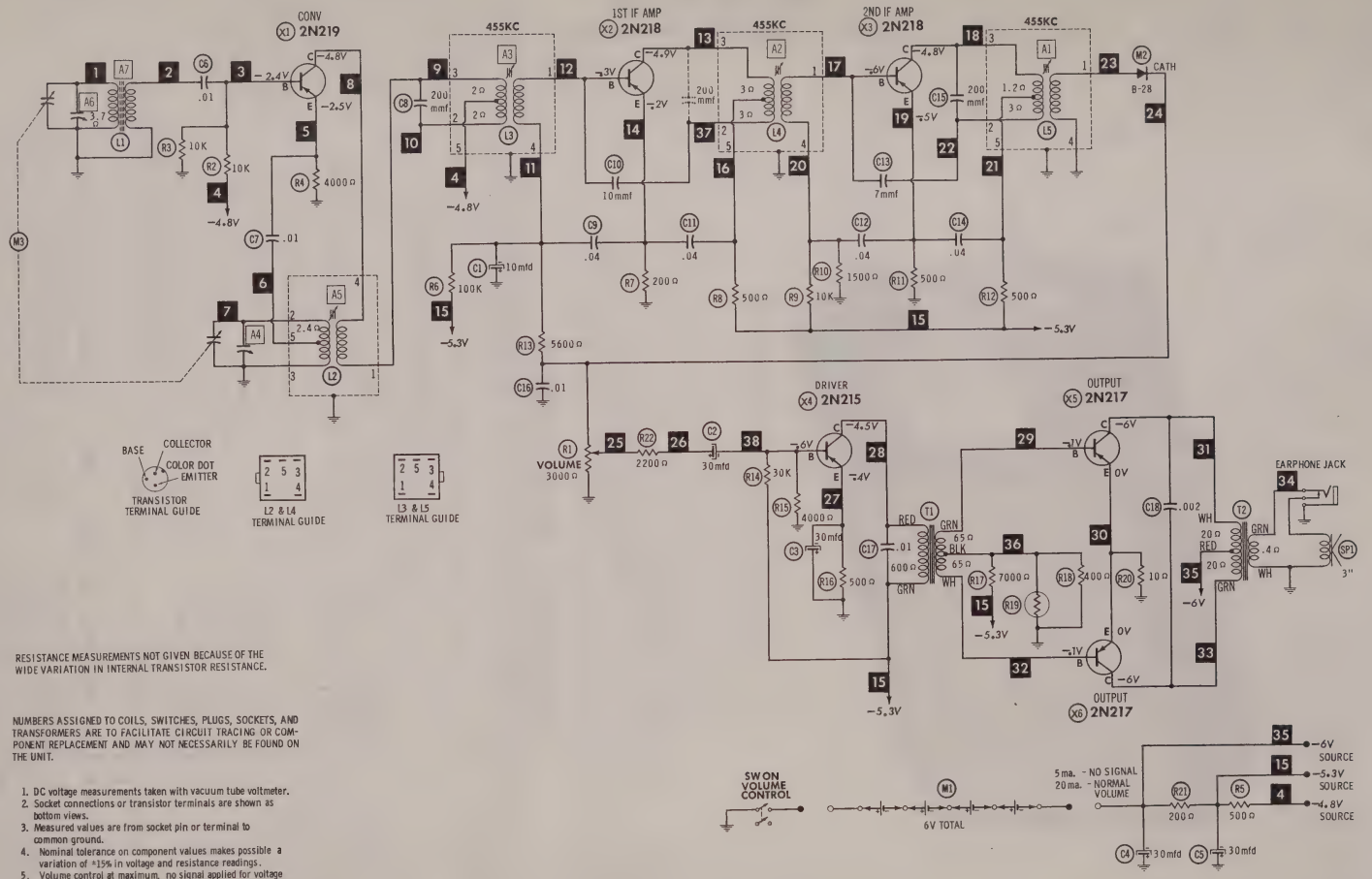
KF853

SET 560 FOLDER 4



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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ACME MODEL
Tops All CH-620

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2N219	Converter	2N219	2N486	PNP
X2	2N218	1st IF Amplifier	2N218	2N483	PNP
X3	2N218	2nd IF Amplifier	2N218	2N483	PNP
X4	2N215	Driver	2N215	2N362	PNP
X5	2N217	Output	2N217	2N361	PNP
X6	2N217	Output	2N217	2N361	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ACME PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	6		PTT23	NLW10-6	MT1-5	TT6X10	MLV10-6	TE-1087
C2	30	6		PTT27	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092
C3	30	6		PTT27	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092
C4	30	6		PTT27	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092
C5	30	6		PTT27	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.01		C80V103AM	DM-103	H-05SI		TA-110	TG-S10
C7	.01		C80V103AM	DM-103	H-05SI		TA-110	TG-S10
C8	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C9	.04							
C10	10		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C11	.04							
C12	.04							
C13	7		NPO-SI 6.8	TCZ-6R8	C10V7C	CCTC-6R8	CNO-568	10TCC-V68
C14	.04							
C15	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C16	.01		C80V103AM	DM-103	H-05SI		TA-110	TG-S10
C17	.01		C80V103AM	DM-103	H-05SI		TA-110	TG-S10
C18	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ACME PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	3000Ω	½						Volume & Switch

RESISTORS

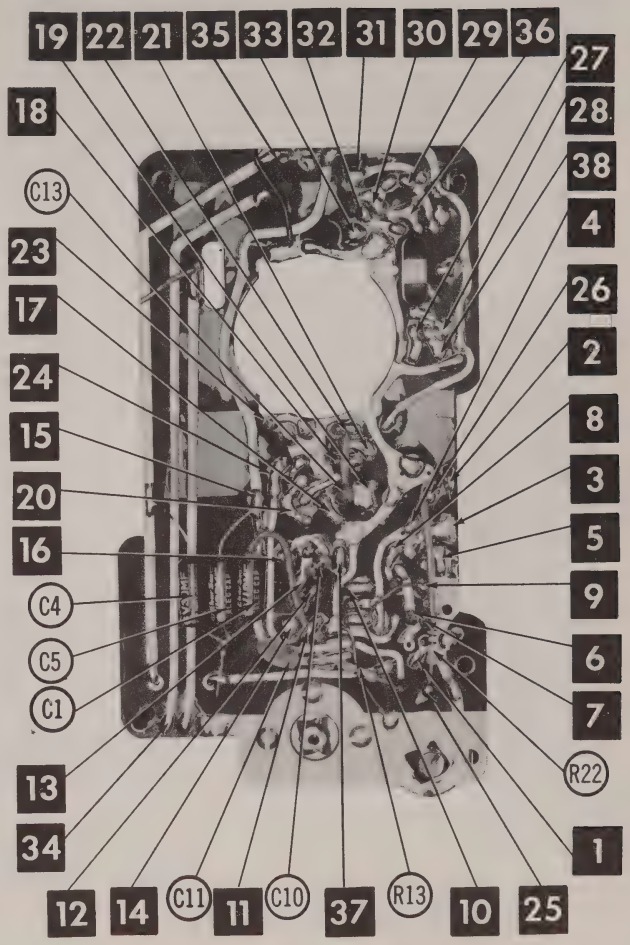
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	10K			
R3	10K			
R4	4000Ω			
R5	500Ω			
R6	100K			
R7	200Ω			
R8	500Ω			
R9	10K			
R10	1500Ω			
R11	500Ω			
R12	500Ω			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R13	5600Ω			
R14	30K			
R15	4000Ω			
R16	500Ω			
R17	7000Ω			
R18	400Ω			
R19	Thermister			
R20	10Ω			
R21	200Ω			
R22	2200Ω			

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



ACME MODEL
Tops All CH-620

FOLDER 4

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ACME PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Osc.						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ACME PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.8	1	TO-3A					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ACME PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	100Ω CT	10-12Ω	TO-4A					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ACME PART No.	QUAM PART No.	
SP1	3"	PM	10-12Ω			

BATTERIES

ITEM No.	VOLTAGE	ACME PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930		1015		M-15R	4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ACME PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	B-28			1N60	Detector

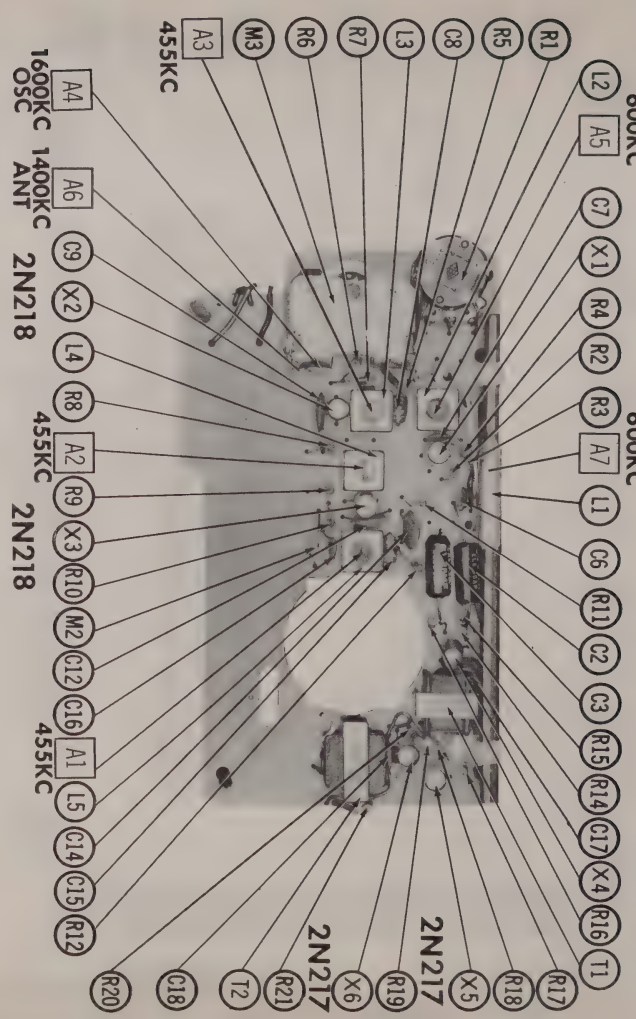
MISCELLANEOUS

ITEM No.	PART NAME	ACME PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



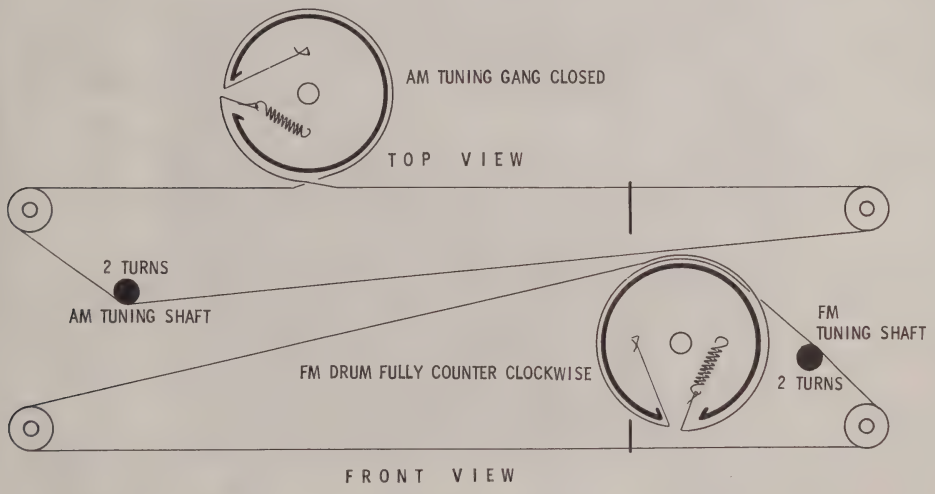
PHOTOFACT® Folder

**CAPITOL
MODEL 929**

TRADE NAME	Capitol Model 929		
MANUFACTURER	Capitol Records, Inc., 1 S. Webster Ave., Scranton 5, Pa.		
TYPE SET	AC Operated 11 Tube FM-AM Receiver with Stereo Amplifier and 4 Speed Automatic Record Changer		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	97 Watts, .9 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 540 - 1600KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #375-004 - SEE V-M 1201 - PHOTOFACT SET 436 FOLDER 18
OR RECORD CHANGER MANUAL RC-12

DIAL CORD STRINGING



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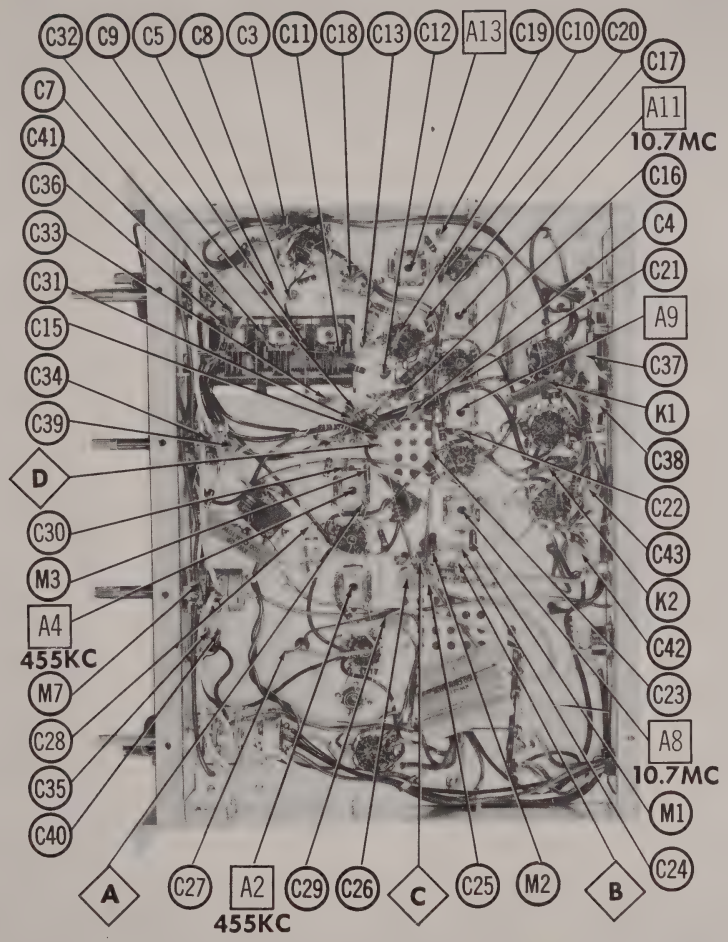
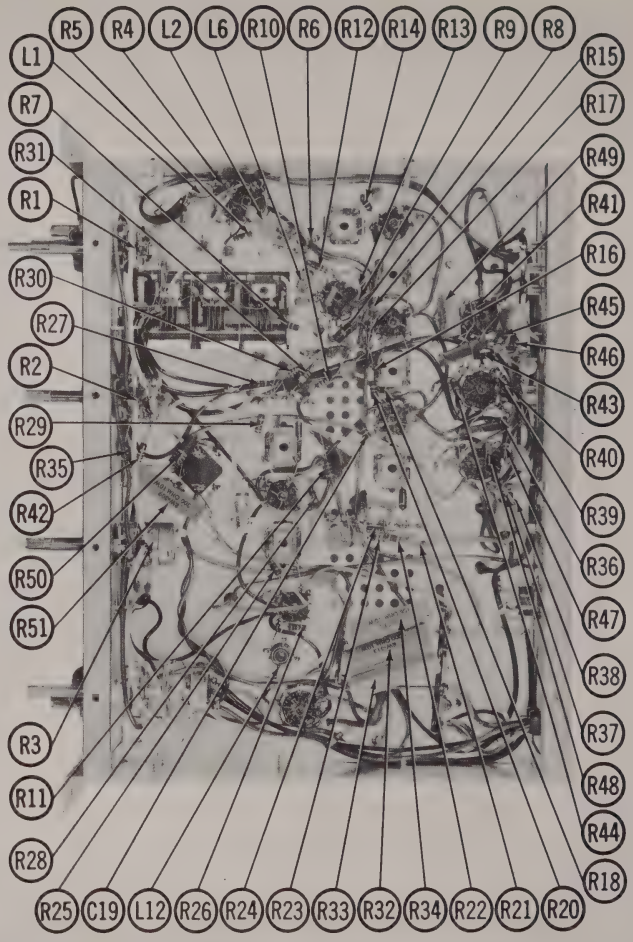
KN825

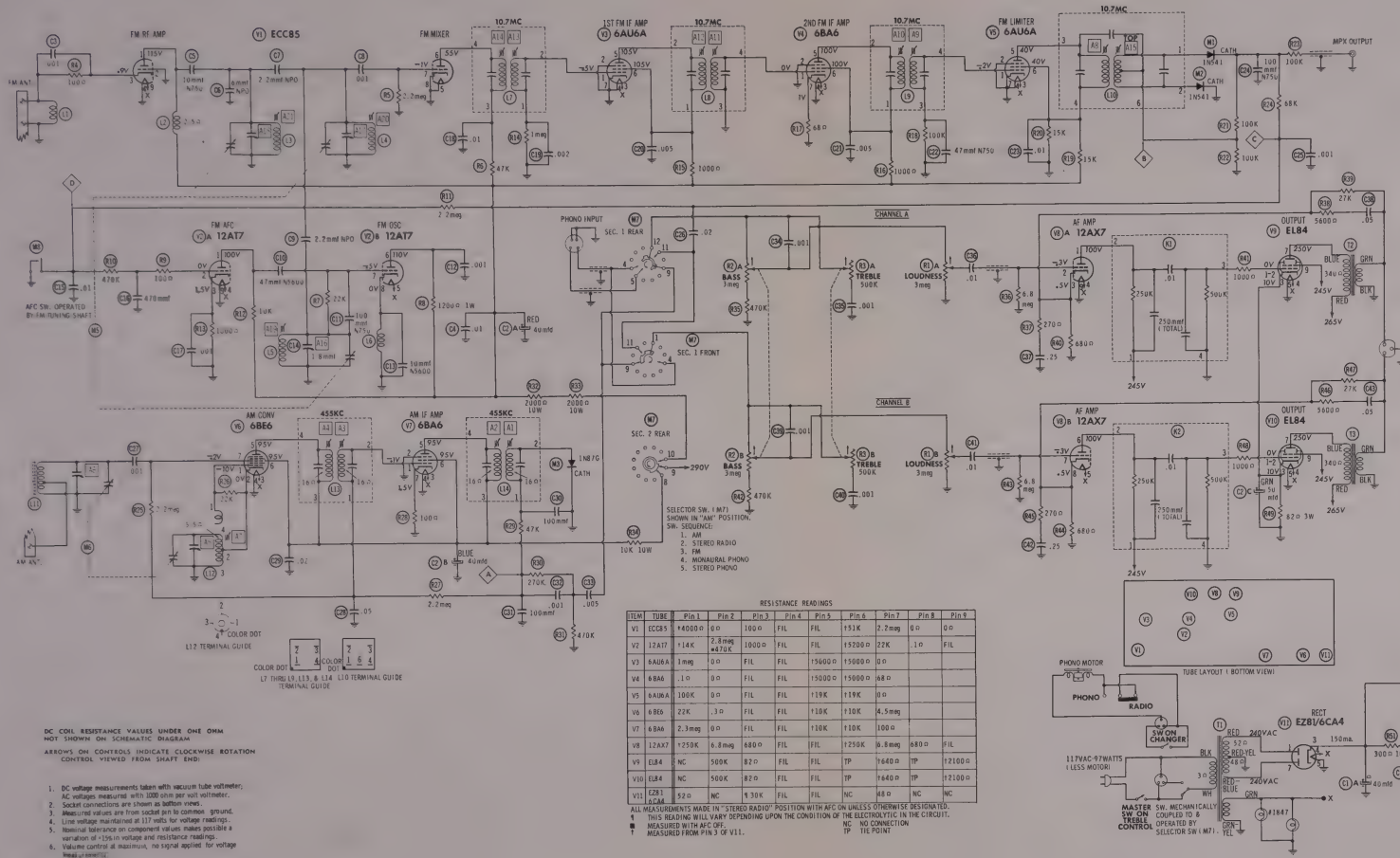
CAPITOL
MODEL 929
CAPITOL
MODEL 929
SET 560 FOLDER 5



CHASSIS BOTTOM VIEW-
ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-
RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†40000Ω	0Ω	100Ω	FIL	FIL	†51K	2.2meg	0Ω	0Ω
V2	12AT7	†14K	2.8meg ■47K	1000Ω	FIL	FIL	†5200Ω	22K	.1Ω	FIL
V3	6AU6A	1meg	0Ω	FIL	FIL	†5400Ω	†5000Ω	0Ω		
V4	6BA6	.1Ω	0Ω	FIL	FIL	†5000Ω	†5000Ω	68Ω		
V5	6AU6A	100K	0Ω	FIL	FIL	†19K	†19K	0Ω		
V6	6BE6	22K	.3Ω	FIL	FIL	†10K	†10K	4.5meg		
V7	6BA6	2.3meg	0Ω	FIL	FIL	†10K	†10K	100Ω		
V8	12AX7	†250K	6.8meg	680Ω	FIL	FIL	†250K	6.8meg	680Ω	FIL
V9	EL84	NC	500K	82Ω	FIL	FIL	TP	†640Ω	TP	†2100Ω
V10	EL84	NC	500K	82Ω	FIL	FIL	TP	†640Ω	TP	†2100Ω
V11	EZ81 6CA4	52Ω	NC	¶30K	FIL	FIL	NC	48Ω	NC	NC

ALL MEASUREMENTS MADE IN "STEREO RADIO" POSITION WITH AFC ON UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
■ MEASURED WITH AFC OFF.
† MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION
TP TIE POINT

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END!

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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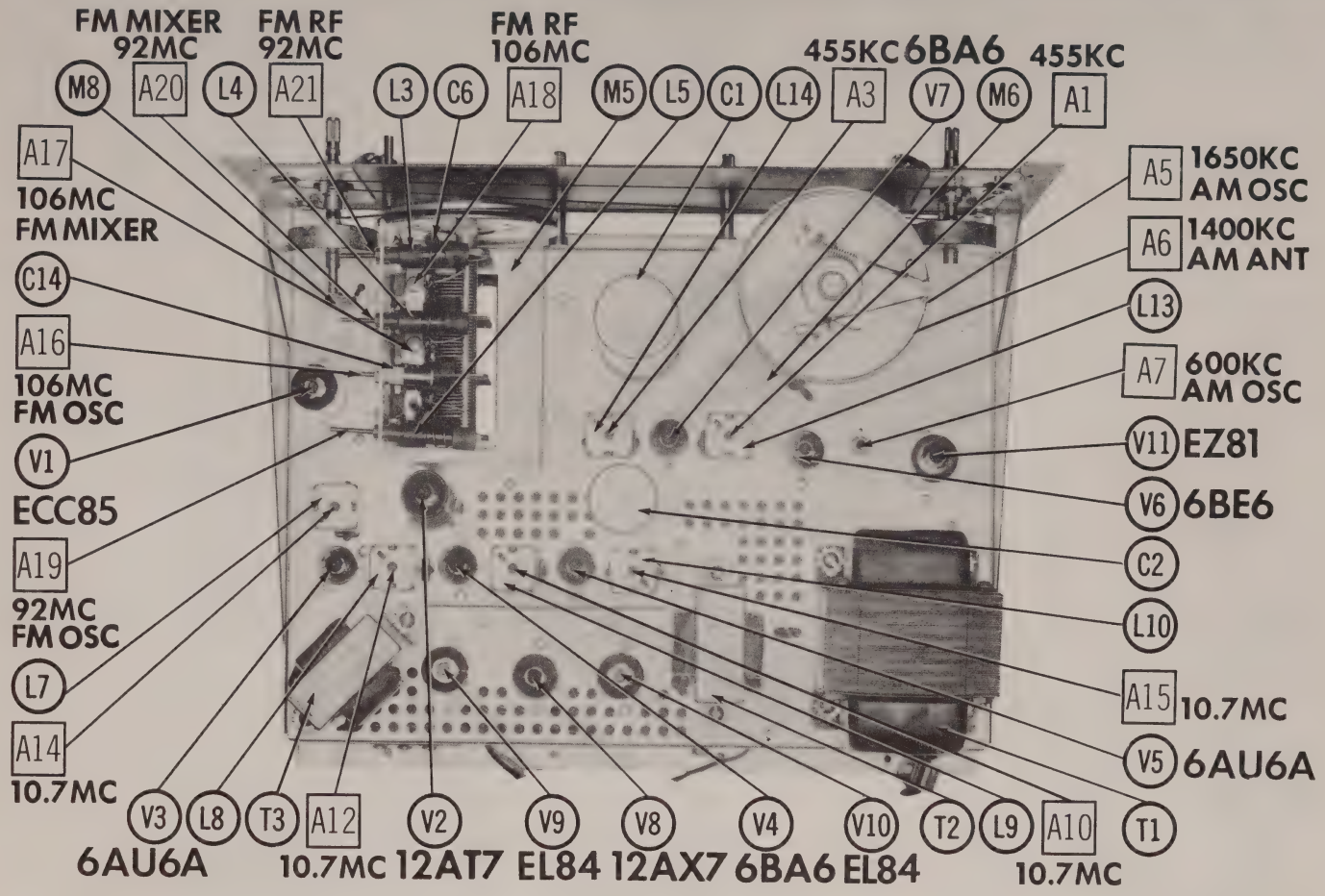
CAPITOL
MODEL 929



CHASSIS-TOP VIEW

CAPITOL
MODEL 929

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 thru A4, A8 thru A15 ..	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A17, A18	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A7	GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A16, A19, A20, A21	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru 2.2mfd to AM antenna terminal. Low side to chassis.	455KC (400∿ 30% AM)	(AM) Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	1650KC	1650KC	"	A5	"
3.	"	1400KC	1400KC	"	A6	"
4.	"	600KC	600KC	"	A7	Adjust for maximum output while rocking tuning gang. Repeat steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

Remove FM Oscillator Tube.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	High side to ungrounded tube shield over FM Mixer tube. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference	DC probe thru 1meg to point (B). Common to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (C). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Reinsert FM Oscillator Tube.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Remove FM Oscillator Tube.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	High side to ungrounded tube shield over FM Mixer tube. Low side to chassis.	10.7MC (450KC Swp.)	(FM) Point of non-interference	Vert. Amp. thru 47K to point (B). Low side to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2 SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines. Reinsert FM Oscillator Tube.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

Short point (D) to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	High side thru 270Ω to FM Antenna Terminal. Low side to chassis.	106MC (Unmod.)	(FM) 106MC	DC probe thru 1meg to point (B). Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
8.	"	92MC	92MC	"	A19, A20, A21	Adjust for maximum deflection. Repeat steps 7 and 8.

FIG. 1

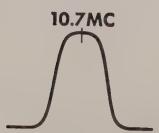
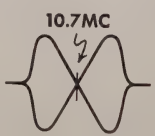


FIG. 2



PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	FM RF Amp. - FM Mixer	ECC85 (6AQ8) *
V2	FM Osc. - FM AFC	12AT7
V3	1st FM IF Amp.	6AU6A
V4	2nd FM IF Amp.	6BA6
V5	FM Limiter	6AU6A
V6	AM Converter	6BE6
V7	AM IF Amplifier	6BA6
V8	Channel A AF Amp. - Channel B AF Amp.	12AX7
V9	Channel A Output	EL84 (6BQ5) *
V10	Channel B Output	EL84 (6BQ5) *
V11	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CAPITOL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲40	450	160-010	AFH3-44	C0350	XC3-40	FP377.1	TMT-3748	TVL-3787
B	■40	450							
C	▲40	450							
C2A	40	350	160-014	PR4-200			WT458		
B	40	350							
C	50	50							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCC-Q10
C6	6 NPO				C10V6C			
C7	2.2 NPO		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	2.2 NPO		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2 *	CNO-522	10TCC-V22
C10	47 N5600							
C11	100 N750		N750-SI 100	TCZ-100	C10T1C	CCTO-101 *	CNO-310	10TCC-T10
C12	.001		BPD-001	DD-102	BYA10D1	CCD-102 *	B-210	5HK-D10
C13	10 N5600							
C14	1-8	#190-005		829-10				
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	470		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C17	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCC-Q47
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C25	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C26	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C27	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C29	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C31	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C32	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C38	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C39	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C43	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50

\# Capitol Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPITOL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg		130-064	F1-79				Loudness, Channel A
B	3meg			R2-79				Loudness, Channel B
C	Spring			AK-32				Friction Drive
R2A	3meg		130-062	B-85			FC36A	Bass, Channel A
B	3meg			SR-85			RU36A	Bass, Channel B
C	Shaft			Not Req.			CS3500	
R3A	500K		130-063	B-60	AD47-500K-Z		FA55A	Treble, Channel A
B	500K			SR-60	Not Req.		RU55A	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
D	Switch			KR-1	SWE-12		US41	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100Ω			
R5	2.2meg			
R6	47K			
R7	22K			
R8	1200Ω 1W			
R9	100Ω			
R10	470K			
R11	2.2meg			
R12	10K			
R13	1000Ω			
R14	1meg			
R15	1000Ω			
R16	1000Ω			
R17	68Ω			
R18	100K			
R19	15K			
R20	15K			
R21	100K			
R22	100K			
R23	100K			
R24	68K			
R25	2.2meg			
R26	22K			
R27	2.2meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R28	100Ω			
R29	47K			
R30	270K			
R31	470K			
R32	2000Ω 10W	PW10-2000	10W-SQ-2000	
R33	2000Ω 10W	PW10-2000	10W-SQ-2000	
R34	10K 10W	PW10-10K	10W-SQ-10K	
R35	470K			
R36	6.8meg			
R37	270Ω			
R38	5600Ω			
R39	27K			
R40	680Ω			
R41	1000Ω			
R42	470K			
R43	6.8meg			
R44	680Ω			
R45	270Ω			
R46	5600Ω			
R47	27K			
R48	1000Ω			
R49	82Ω 3W	PW3-82	3W-SQ-82	
R50	1800Ω 1W			
R51	300Ω 10W	PW10-300	10W-SQ-300	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CAPITOL PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke (.27uh)	220-013 ①		4584	RTC-8512	T957	① IRC Part #CLA.
L2	RF Choke (3.3uh)	220-014 ①	BC-564	4608	RTC-8518	T858	
L3	FM RF	220-011					
L4	FM Mixer	220-011					
L5	FM Osc.	220-012					
L6	RF Choke (1uh)	220-015 ①	BC-561	4602	RTC-8515	T855	
L7	1st FM IF	215-005	FM-254	1463	RTC-8599	T633	
L8	2nd FM IF	215-006	FM-254	1463	RTC-8599	T633	
L9	3rd FM IF	215-007	FM-254	1463	RTC-8599	T633	
L10	Discriminator	215-008	FM-253	1464	RTC-8665	T634	
L11	Loopstick	220-009	BC-419	705-A		T532	
L12	AM Osc.	220-010	BC-393	69-OSC	RTC-8646	T504	
L13	1st AM IF	215-004	BC-352	12-C1	RTC-8632	T607	
L14	2nd AM IF	215-004	BC-353	12-C2	RTC-8633	T608	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	CAPITOL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .9A	480VCT @ .150A DC	6.3V @ 5A	200-012					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CAPITOL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5300Ω	3-4Ω	205-013	A-3019	A-8092	26S49	S-5Z	
T3	5300Ω	3-4Ω	205-013	A-3019	A-8092	26S49	S-5Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CAPITOL PART No.	QUAM PART No.	
SP1	8" x 13⅜"	PM	3-4Ω	229-015		
SP2	3" x 5"	PM	6-8Ω	229-016	35A05Z8	
SP3	8" x 13⅜"	PM	3-4Ω	229-015		
SP4	3" x 5"	PM	6-8Ω	229-016	35A05Z8	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CAPITOL PART No.	REPLACEMENT DATA
K1	Audio Coupling	250mmf, .01mfd, 250K, 500K		Aerovox PA-112-4 Centralab PC-81 Sprague T-2
K2	Audio Coupling	250mmf, .01mfd, 250K, 500K		Aerovox PA-112-4 Centralab PC-81 Sprague T-2

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		CAPITOL PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M1	1N541			1N295	Discriminator (Pigtail), Matched Pair
M2	1N541			1N295	
M3	1N87G			1N87	AM Detector (Pigtail)

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	CAPITOL PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M4	380-020		17D	Not Req.	26DS	2604D * & 2605 *	9TA4-S	N-9TA-S *	

MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
M5	Tuning Cap.	190-004	FM, 3 Gang
M6	Tuning Cap.	190-005	AM, 2 Gang (Ant. 21-484mmf, Osc. 8-160mmf)
M7	Switch	240-015	Function Selector (Rotary Wafer Type), Includes Off-On Switch
M8	Switch	240-016	AFC (Leaf Type, Operated by FM Tuning Shaft)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	282-004	
Dial Pointer	283-004	
Knob	305-054	Tuning, Bass, Treble, Function
Knob	305-055	Volume
Knob	305-056	Balance
Cabinet	300-929S	Speaker
Cabinet	300-929	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

**COLUMBIA MODELS
C1219, C1463**

COLUMBIA MODELS
C1219, C1463

MODEL C1463

COLUMBIA MODELS
C1219, C1463

TRADE NAME	Columbia Models C1219, C1463
MANUFACTURER	Columbia Phonographs, Dept. of CBS Electronics, 405 Park Ave., New York, N. Y.
TYPE SET	AC Operated 4 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 59 Watts, .58 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE SIMILAR GLASER-STEERS GS-77 (REVISED) – PHOTOFACT SET 482 FOLDER 11

SET 560 FOLDER 6

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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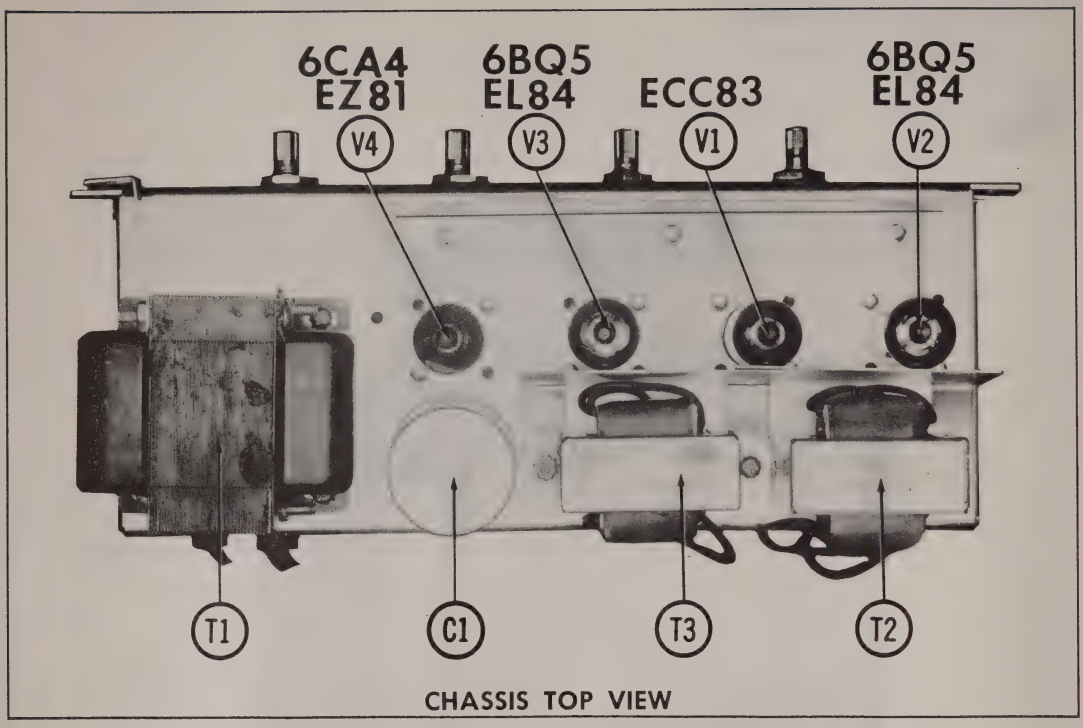
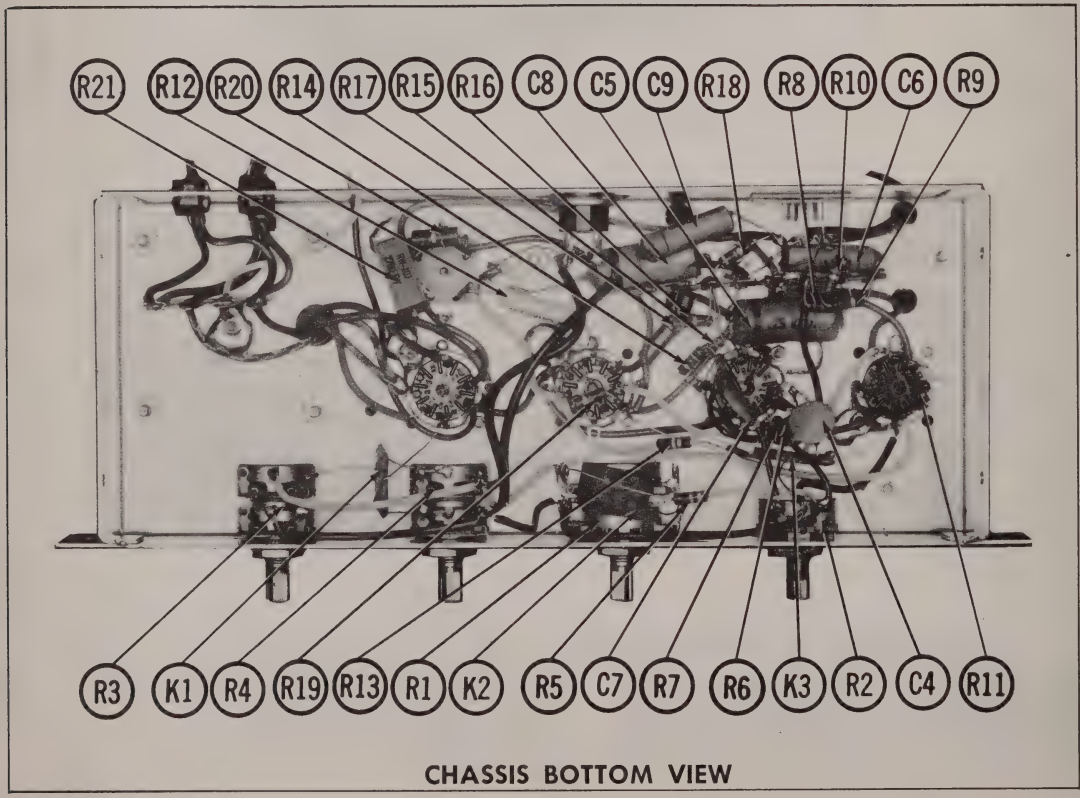
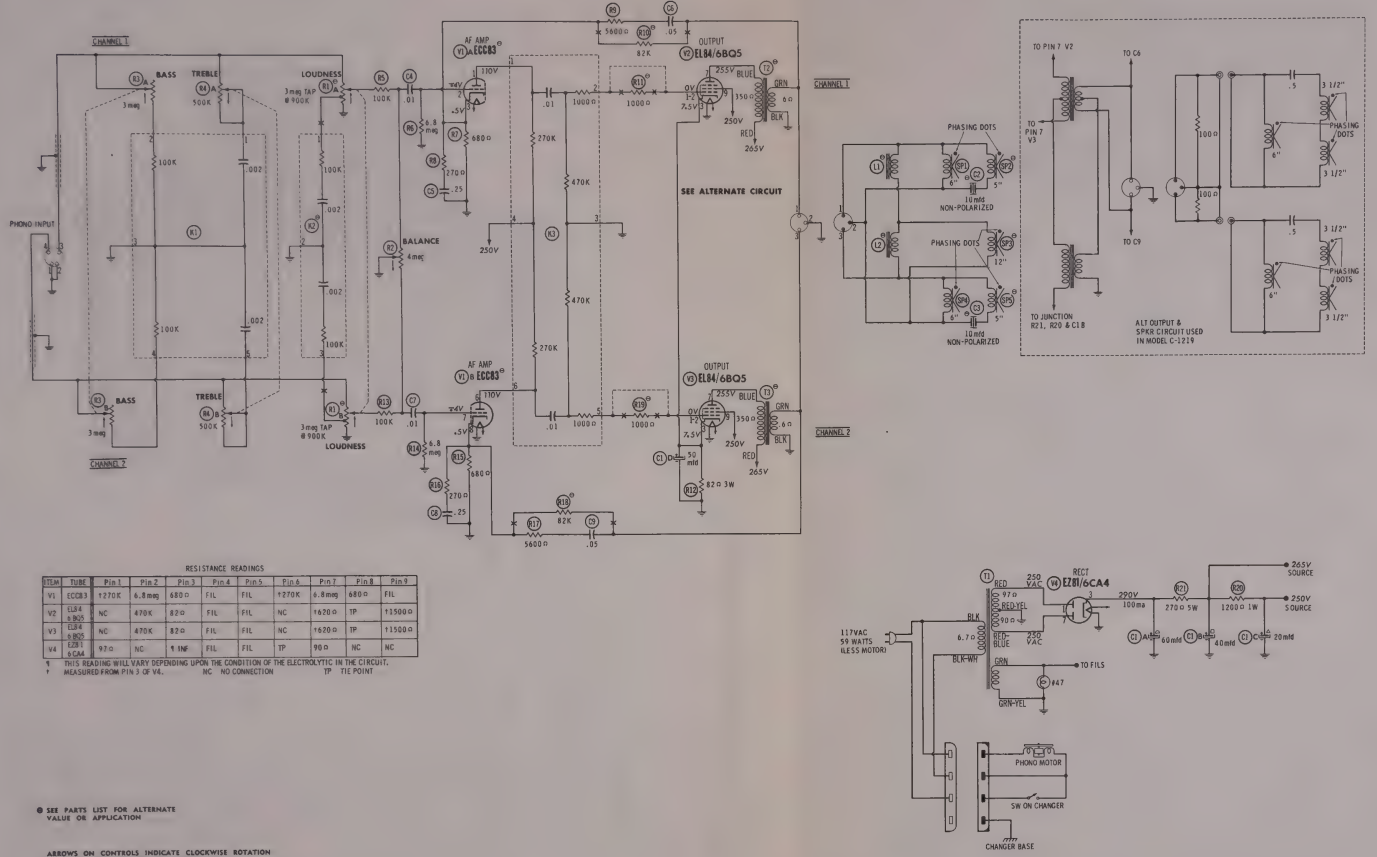


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	↑270K	6.8 meg	680Ω	FIL	FIL	↑270K	6.8 meg	680Ω	FIL
V2	EL84 & 6BQ5	NC	470K	82Ω	FIL	FIL	NC	↑620Ω	TP	↑1500Ω
V3	EL84 & 6BQ5	NC	470K	82Ω	FIL	FIL	NC	↑620Ω	TP	↑1500Ω
V4	EZ81 & 6CA4	97Ω	NC	¶ INF	FIL	FIL	TP	90Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↑ MEASURED FROM PIN 3 OF V4. NC NO CONNECTION TP TIE POINT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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COLUMBIA MODELS C1219, C1463

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC)	ITEM No.	USE	TYPE (• RAYTHEON • SYLVANIA •)
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	ECC83 (12AX7) *	V3	Channel 2 Output	EL84/6BQ5
V2	Channel 1 Output	EL84/6BQ5	V4	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA COLUMBIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲60	400	11B758	AFH3-123-65	C1080	XC4-79	FP376.9	TMT-3489	TVL-3688
B	■40	350		PRS1265	BR6045		TC795	TD-50-25	TVA-1206
C	▲20	300							
D	50	25							
C2	10	25NP	Note 1	PRS7315	BBR10-150	NPQT-3	TCN5010		TVANS-1204.1*
C3	10	25NP	Note 1	PRS7315	BBR10-150	NPQT-3	TCN5010		TVANS-1204.1*

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Model C1219 uses .5mfd in this application.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.01		BF-D-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C6	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C9	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA COLUMBIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg 900K Tap	1/2	①				FA36T96	Loudness, Channel 1
B	3meg 900K Tap	1/2					RU36T16	Loudness, Channel 2
C	Shaft						CS3500	

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA COLUMBIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	4meg	1/2	9B651	B-86	A47-4meg-S	B11-240	U67	Balance
B	Shaft			Not Req.	KSS-3	SK1	Not Req.	
R3A	3meg	1/2	9B613	B-85			FA36A	Bass, Channel 1
B	3meg	1/2		SR-85			RU36A	Bass, Channel 2
C	Shaft			Not Req.			CS3500	
R4A	500K	1/2	9B614	B-60	AD47-500K-Z		FA55A	Treble, Channel 1
B	500K	1/2		SR-60	Not Req.		RU55A	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	

① Model C-1219 uses Part #9B613 (Refer to R3 for replacements.)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	100K			
R6	6.8meg			
R7	680Ω			
R8	270Ω			
R9	5600Ω			
R10	82K			Note 1
R11	1000Ω			Note 2
R12	82Ω 3W	PW3-82	3W-SQ-82	
R13	100K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R14	6.8meg			
R15	680Ω			
R16	270Ω			
R17	5600Ω			
R18	82K			Note 1
R19	1000Ω			Note 2
R20	1200Ω 1W			
R21	270Ω 5W	PW5-270	5W-SQ-270	

Note 1. Not used in Model C-1219.
Note 2. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	COLUMBIA PART No.	REPLACEMENT DATA
K1	Tone Comp.	.002mfd, .002mfd, 100K, 100K	5B315	
K2	Loudness Comp.	.002mfd, .002mfd, 100K, 100K	(PC4748)	Note 1
K3	Audio Coupling	.01mfd, .01mfd, 1000Ω, 1000Ω, 270K, 270K, 470K, 470K	5B316	

Note 1. Not used in Model C-1219.

PARTS LIST AND DESCRIPTIONS (Continued)

CROSSOVER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	COLUMBIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L1		.4Ω	.004HY	21B205①					① Model C1463 Only.
L2		.4Ω	.004HY	21B205①					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	COLUMBIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .58A	500VCT @ .100A DC	6.3V@ 2.9A	2B119	P-3148①	PC-8420①	24R13U①②		① Drill New Mounting Hole(s). ② Tape 5V & CT on 6.3V Windings

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	COLUMBIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5300Ω	3-4Ω	3B262①	A-3019	A-8092	26S49	S-5Z	① Part #3B250 used in Model C1219
T3	5300Ω	3-4Ω	3B262②	A-3019	A-8092	26S49	S-5Z	② Part #3B251 used in Model C1219

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	COLUMBIA PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	1B108	6A21	* Model C-1463 only
SP2	5"	PM	3-4Ω	1B171*	5A1R	‡ Model C-1209 only
SP3	12"	PM	3-4Ω	1B136*	12A6A	
SP4	6"	PM	3-4Ω	1B108	6A21	
SP5	5"	PM	3-4Ω	1B171*	5A1R	
	3½"	PM	3-4Ω	1B153‡	3A07	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	COLUMBIA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	SC-8D	Not Req.	17	Not Req.	26S	2604* & 2605*	16T-SD	Not Req.	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8B545	Model C1219
Knob	8B544	Model C1463
Cabinet	17B117	Mahogany, Model C1463
Cabinet	17B118	Walnut, Model C1463
Cabinet	17B119	Cherry, Model C1463

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

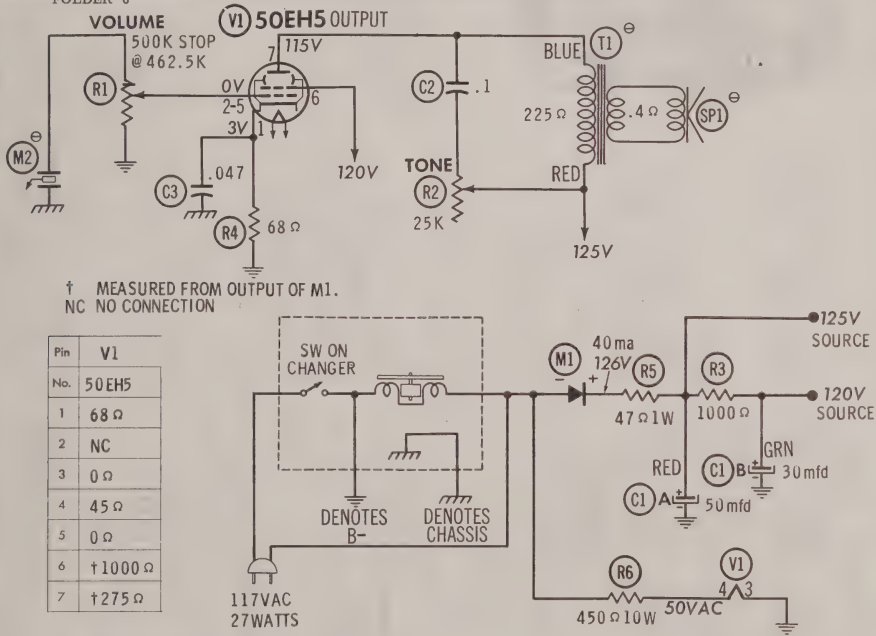
PHOTOFACT® Folder

EMERSON MODEL 935B (Ch. 120548B)

EMERSON MODEL
935B (Ch. 120548B)

TRADE NAME	Emerson Model 935B (Ch. 120548B)
MANUFACTURER	Emerson Radio & Phono Corp., 524 W. 23rd Street, New York 11, N. Y.
TYPE SET	AC Operated One Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 27 Watts, .25 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER 819161 – SEE SIMILAR B. S. R. UA12 – PHOTOFACT SET 465 FOLDER 6



Pin No.	V1 50EH5
1	68Ω
2	NC
3	0Ω
4	45Ω
5	0Ω
6	†1000Ω
7	†275Ω

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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KS860

SET 560 FOLDER 7

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Output	50EH5

ITEM No.	USE	TYPE

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	50	150	925312	PRS2200	BBRD5315	QT2-7	TCD497	TDLD-8	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C3	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K Stop ②	½ 462.5K	390659	B-613*	A47-500K-S*	Q17-133*	TA55R*	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	25K	½	390660	B-25	A47-25K-W	Q13-120	U28A	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

* Use 39K, ½W Resistor in series with right hand terminal, viewed shaft end terminals down.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	1000Ω			
R4	68Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	47Ω 1W	PW10-470	10W-8Q-470	
R6	450Ω 10W			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA EMERSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3300Ω	3-4Ω	(Part of SP1)	A-3025	A-3332	24S53	S-16X	

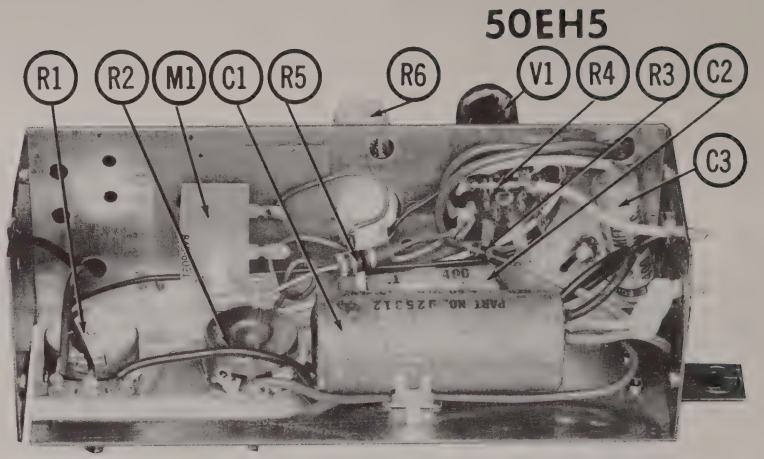
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	180239 *	4A07	* Includes Output Transformer

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA EMERSON PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.040A	817103 *	1N1763 †	75*	* Selenium † Silicon

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA EMERSON PART No. CARTRIDGE	EMERSON PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M2	963093	963094* (LP)	124TS	N8-1*	46T	Not Req.	2T-S	N2T-S	
		963095* (78RPM)		N8-3*					
	963090	963091* (LP)	422-TB	N8-1*	46T	Not Req.	2T-S	N2T-S	Used in Some Versions
		963092 * (78RPM)		N8-3*					

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	460668A	
45RPM Spindle	962490	
Cabinet	141178	Ebony
Cabinet	141178A	Brown & Tan
Cabinet	141178B	Two-Tone Green
Cabinet	141178C	Ebony & Silver

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

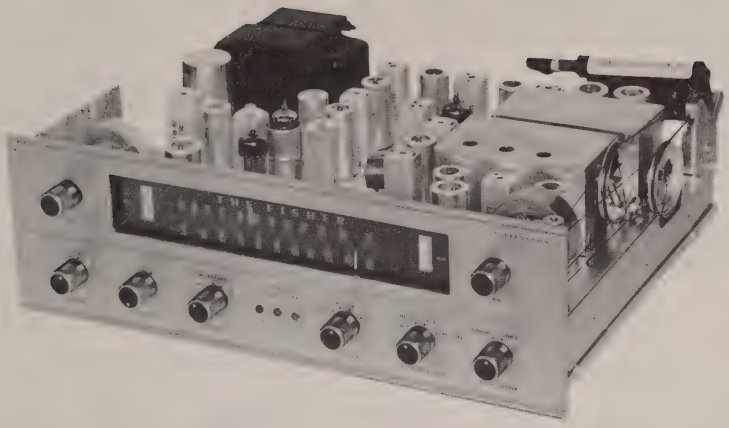
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

FISHER
MODEL 202-R

FISHER
MODEL 202-R



FISHER
MODEL 202-R

TRADE NAME	Fisher Model 202-R (Serial #10001-19999 Inclusive)
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.
TYPE SET	AC Operated 16 Tube FM-AM Tuner
POWER SUPPLY	105 — 120 Volts AC, 50-60 Cycles RATING 78 Watts, .7 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 — 1600KC FREQ. MOD. 88 — 108MC

SET 560 FOLDER 8

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	ECC88/6DJ8
V2	FM Mixer-FM Osc.	ECC85/6AQ8
V3	1st FM IF Amplifier	EF94/6AU6
V4	2nd FM IF Amplifier	EF94/6AU6
V5	1st FM Limiter	EF94/6AU6
V6	2nd FM Limiter	EF94/6AU6
V7	3rd FM Limiter	6BN6
V8	FM Muting Osc.-Det.-	6AV6 (EBC91) *
V9	3rd FM IF Amplifier	EF94/6AU6
V10	AFC Defeat Amp.	6EV7
V11	FM AF Amp.-Cath. Foll.	ECC83/12AX7
V12	AM RF Amplifier	6BA6 (EF93) *
V13	AM Converter	6BE6 (EK90) *
V14	1st AM IF Amplifier	6BA6 (EF93) *
V15	2nd AM IF Amp.-AM Det.-AM AVC	EBF89 (6DC8) *
V16	AM AF Amplifier	ECC83/12AX7

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲40	300	C50180-24	AFH4-02			FP327.89	TMD-2315	TVL-3583
B	■40	300						TD-30-350	
C	▲40	300							
C2	20	250	C746-145	PRS1570	BR2025	QT1-9	TC55	TD-20-250	TVA-1508
C3	20	250	C746-145	PRS1570	BR2025	QT1-9	TC55	TD-20-250	TVA-1508
C4	8	50	C629-138	PTT91	NLW8-50	MT1-6	TC41	MLV10-50	TE-1303, 3
C5	25	6	C639-114	PTT26	NLW25-6	MT1-10	TT6X25	MLV25-6	TE-1091

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6		#C662-123						
C7	10 NPO ±.5mmf		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C8	100 N1500	#C5070-6		TCL-100		*		
C9	100 N1500	#C50070-6		TCL-100		*		
C10	.001		EF-001	MFT-1000		CCF-102	CT280A	
C11	.001		EF-001	MFT-1000		CCF-102	CT280A	
C12	.001		EF-001	MFT-1000		CCF-102	CT280A	
C13	.001		EF-001	MFT-1000		CCF-102	CT280A	
C14	.001		EF-001	MFT-1000		CCF-102	CT280A	
C15	.001		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C16		#C662-123						
C17	10 NPO ±.5mmf		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C18	68 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C19	24 N150 5%	#C50070-8				*		
C20	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C21	3 NPO 10%		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C22		#C662-123						
C23	8 N220 ±.5mmf	#CC20EJ080D5				*		10TCR-V82
C24	100 N1500	#C50070-6		TCL-100		*		
C25	100 N1500	#C50070-6		TCL-100		*		
C26	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	100 N150 5%	#C50070-19				*		10TCP-T10
C28	.001 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C29	.001		EF-001	MFT-1000		CCF-102	CT280A	
C30	.001		EF-001	MFT-1000		CCF-102	CT280A	
C31	.001		EF-001	MFT-1000		CCF-102	CT280A	
C32	.001		EF-001	MFT-1000		CCF-102	CT280A	
C33	.001		EF-001	MFT-1000		CCF-102	CT280A	
C34	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C35	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C36	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C37	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C38	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C39	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C40	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C42	24 N150 5%	#C50070-8				*		

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C43	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C44	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C45	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C47	24 N150 5%	#C50070-8				*		
C48	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C49	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C50	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C51	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C53	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C54	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C55	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C56	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C57	.12 NPO 10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C58	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C59	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C60	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C61	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C62	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C63	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C64	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C65	.0033 200V 5%		V84C2D33-5%		1R5D33	CM-20B-332J	MCJ462	MS-233
C66	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C67	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C68	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C69	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C70	5 NPO ±.5mmf		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-550	10TCC-V50
C71	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C72	100 N1500	#C50070-6		TCL-100		*		
C73	100 N1500	#C50070-6		TCL-100		*		
C74	15 N75 10%	#C50070-18				*		
C75	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C76	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C77	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C78	24 N150 5%	#C50070-8				*		
C79	100 N1500	#C50070-6		TCL-100		*		
C80	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C81	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C82	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C83	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C84	.68mmf 10%		NPO-SI .68	TCZ-R68				
C85	5 ±.5mmf		NPO-SI 5.0	TCZ-4R5	C10V5C	CCTO-050	CNO-547	10TCC-V47
C86	100 N1500	#C50070-6		TCL-100		*		
C87	100 N1500	#C50070-6		TCL-100		*		
C88	10 NPO ±.5mmf		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C89	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C90	470 5%		1469-00047		5R5T47	CM-19B-471J	MCJ244	MS-347
C91	470 5%		1469-00047		5R5T47	CM-19B-471J	MCJ244	MS-347
C92	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C93	470 5%		1469-00047		5R5T47	CM-19B-471J	MCJ244	MS-347
C94	470 5%		1469-00047		5R5T47	CM-19B-471J	MCJ244	MS-347
C95	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C96	10 NPO ±.5mmf		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C97	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C98	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C99	1 NPO		NPO-DI 1.0	TCZ-1			CNO-510	10TCC-V10
C100	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C101	100 N1500	#C50070-6		TCL-100		*		
C102	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C103		#C629-151-5						
C104	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C105	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C106	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C107	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C108	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C109	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C110	150 10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15

\# Fisher Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	100K	½	R50160-63	B-41	A47-100K-Z	Q13-128	U39	F. M. Muting
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	Muting Off-On
R2A	25K	½	R50103-2	AB-26	A47-25K-S	Q11-120	SU-29	FM Microtune Sens.
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R3A	500K	½	R50103-6	BX-59	A47-500K-S	Q11-133	SU-50	AM Output
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R4A	250K	½	R50103-1	AB-50	A47-250K-S	Q11-130	SU-46	FM Output
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	270Ω				R56	22K			
R6	330Ω				R57	1500Ω			
R7	100K				R58	1000Ω			
R8	120Ω				R59	6800Ω			
R9	330K				R60	6800Ω			
R10	330K				R61	22meg			
R11	1000Ω				R62	390K			
R12	470K				R63	3900Ω			
R13	8200Ω				R64	10meg			
R14	470K				R65	10meg			
R15	100Ω				R66	6800Ω			
R16	2200Ω				R67	1000Ω			
R17	470Ω				R68	2700Ω			
R18	470Ω				R69	27K 1W			
R19	470K				R70	470K			
R20	470K				R71	2, 2meg			
R21	82K				R72	100K			
R22	39K			(47K) *	R73	560Ω			
R23	1000Ω				R74	150K			
R24	150Ω				R75	22meg			
R25	1000Ω				R76	4700Ω			
R26	47K				R77	100K			
R27	150Ω				R78	1, 8meg			
R28	47K				R79	1meg			
R29	470K				R80	1000Ω			
R30	470K			Note 1	R81	4, 7Ω			
R31	1000Ω				R82	820K			
R32	82K				R83	1000Ω			
R33	47K				R84	47K			
R34	47K				R85	100Ω			
R35	560Ω				R86	4, 7Ω			
R36	220K				R87	820K			
R37	220K				R88	100Ω			
R38	4700Ω				R89	22K			
R39	56K				R90	18K 1W			
R40	1000Ω				R91	1000Ω			
R41	4700Ω				R92	33K			
R42	5600Ω				R93	100Ω			
R43	330Ω				R94	1meg			
R44	100K				R95	22meg			
R45	68K				R96	820K			
R46	100K				R97	1meg			
R47	220K				R98	18uH			
R48	470K				R99	1000Ω			
R49	390K				R100	27K			
R50	100K				R101	47K			
R51	47K				R102	27K			
R52	1000Ω				R103	470K			
R53	15K				R104	1meg			
R54	27K				R105	68K			
R55	270Ω				R106	2, 2meg			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No	REMARKS
R107	100K				R117	1meg			
R108	150K				R118	220Ω 5W	PW5-220	5W-8Ω-220	
R109	560Ω				R119	220Ω 5W	PW5-220	5W-8Ω-220	
R110	820K				R120	220Ω			
R111	820K				R121	220Ω			
R112	100K				R122	820K			
R113	150K				R123	470Ω			
R114	4700Ω				R124	2700Ω			
R115	560Ω				R125	100Ω			
R116	470K				R126	3, 3Ω			

Note 1. Not used in some versions.
* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Matching	L509-139					① Wound on 100Ω
L2	Ant. Matching	L509-139					
L3	FM Ant.	L726-129					
L4	RF Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L5	RF Choke (.56uh)	L50066-19		BC-560	4590	RTC-8513	T802
L6	RF Choke (.56uh)	L50066-19		BC-560	4590	RTC-8513	T802
L7	RF Choke	L629-180 ①					
L8	FM RF	L726-126					
L9	FM Osc.	AS726-123					
L10	RF Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L11	RF Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L12	RF Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L13	RF Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L14	RF Choke (.56uh)	L50066-19		BC-560	4590	RTC-8513	T802
L15	Fil. Choke (1uh)	L50066-2		BC-561	4602	RTC-8515	T855
L16	1st FM IF	ZZ662-117		FM-254	1463	RTC-8599	T633
L17	2nd FM IF	ZZ50210-2		FM-254	1463	RTC-8599	T633
L18	3rd FM IF	ZZ50210-2		FM-254	1463	RTC-8599	T633
L19	4th FM IF	ZZ50210-4		FM-254	1463	RTC-8599	T633
L20	1st FM Limiter	L670-145					
L21	2nd FM Limiter	L670-145					
L22	Muting Osc.	L50210-22					
L23	Ratio Detector	ZZ592-170		FM-255	1465	RTC-8600	T635
L24	RF Choke (3, 3uh)	L50066-8		BC-564	4608	RTC-8518	T658
L25	AM Ant.	L721-139		BC-380	70-A	RTC-8731	T500
L26	Loopstick	L50210-24		BC-419	705-A		T532
L27	AM RF	L670-151					
L28	AM Osc.	L50210-22		BC-393	70-OSC	RTC-8647	T512
L29	1st AM IF	ZZ629-135					
L30	2nd AM IF	ZZ629-135					
L31	3rd AM IF	ZZ2984		BC-353	12-C2	RTC-8633	T608
L32	10KC Filter	L644-120					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	FISHER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .7A	180V Ⓐ .2A AC	6, 3V Ⓐ 1, 1A	T766-115					
	SEC. 3	SEC. 4	SEC. 5						
	6, 3V Ⓐ 4. 7A								

PARTS LIST AND DESCRIPTIONS (Continued)

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA FISHER PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.100A	SR740-137			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA FISHER PART No. FUSE	FISHER PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	1¼A 250V	F766-141	X1036	312001.5 (3AG 1¼A 250V)	342001	AGC 1¼	HKP

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA FISHER PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M3	6.8SC20	V-726-130			FM AFC
M4	2K4	SR782-117			AM AVC Clamper
M5	2K4	SR782-117			FM AFC Defeat Bias
M6	1N541	V-1N541		1N295	Ratio Detector (Clip In)
M7	1N541	V-1N541		1N295	(Matched Pair)

MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M8	Tuning Cap.	C726-116	FM, 3 Gang
M9	Tuning Cap.	C799-119	AM, 3 Gang (Ant.,10–505mmf, RF 10–503mmf, Osc., 7.4–438mmf)
M10	Switch	S60200-2	FM Antenna Impedance Selector (DPDT Slide Type)
M11	Switch	S60200-2	Distant-Local (FM AGC, DPDT Slide Type)
M12	Switch	S766-133	AM Ant.
M13	Switch	S766-135	Function Selector (Rotary Wafer Type)
M14	Switch	S766-134	FM AFC (Rotary Type)
M15	Switch	S766-132	AM Bandwidth
M16	Switch	S766-133	Power Off-On
M17	Relay	K50276-1	
M18	Meter	M766-136	FM
M19	Meter	M766-137	AM

CABINETS & CABINET PARTS

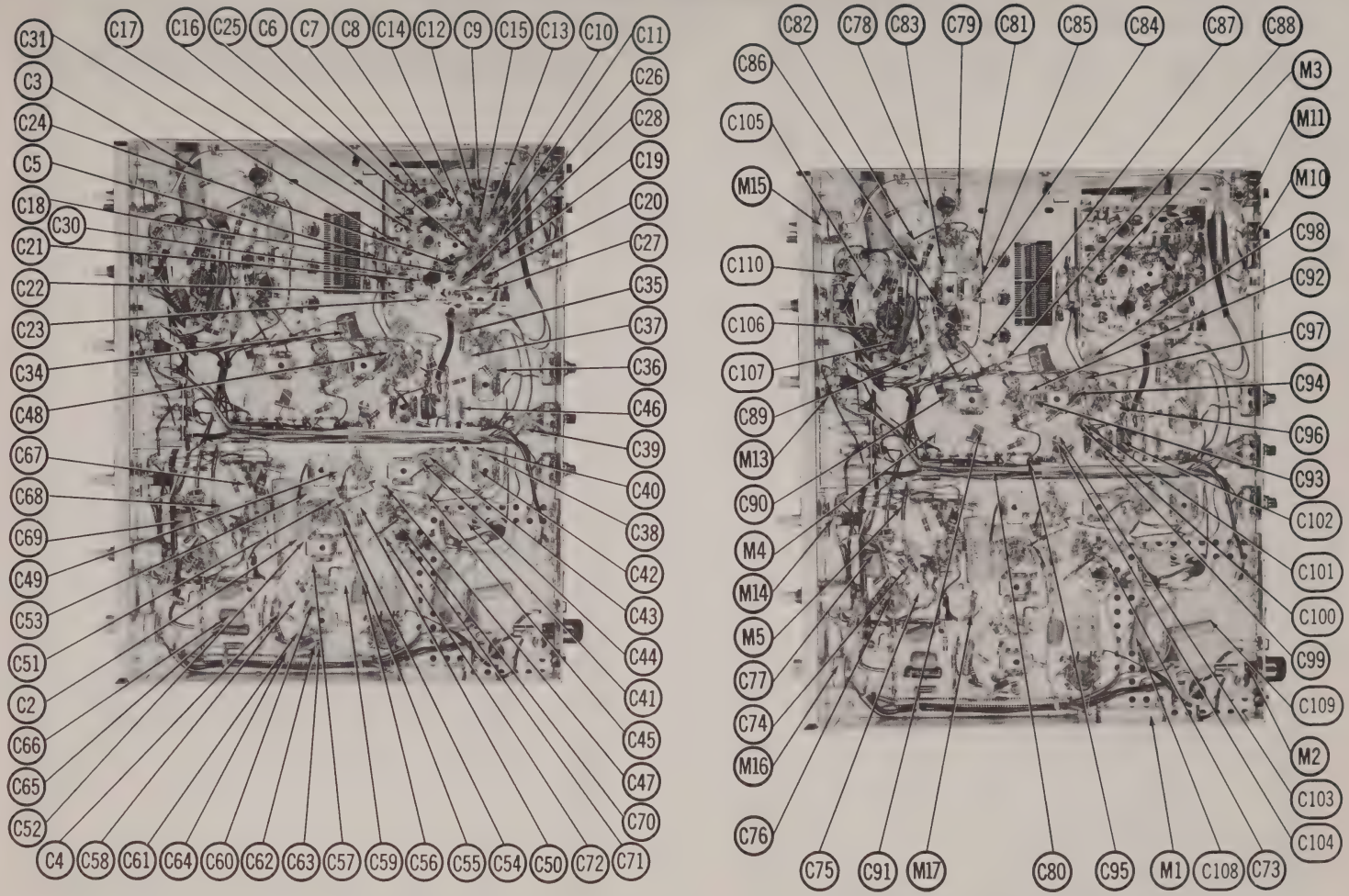
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	N766-107	Tuning, FM-AM
Knob	ES0224-2	With Indicator
Knob	ES0224-1	

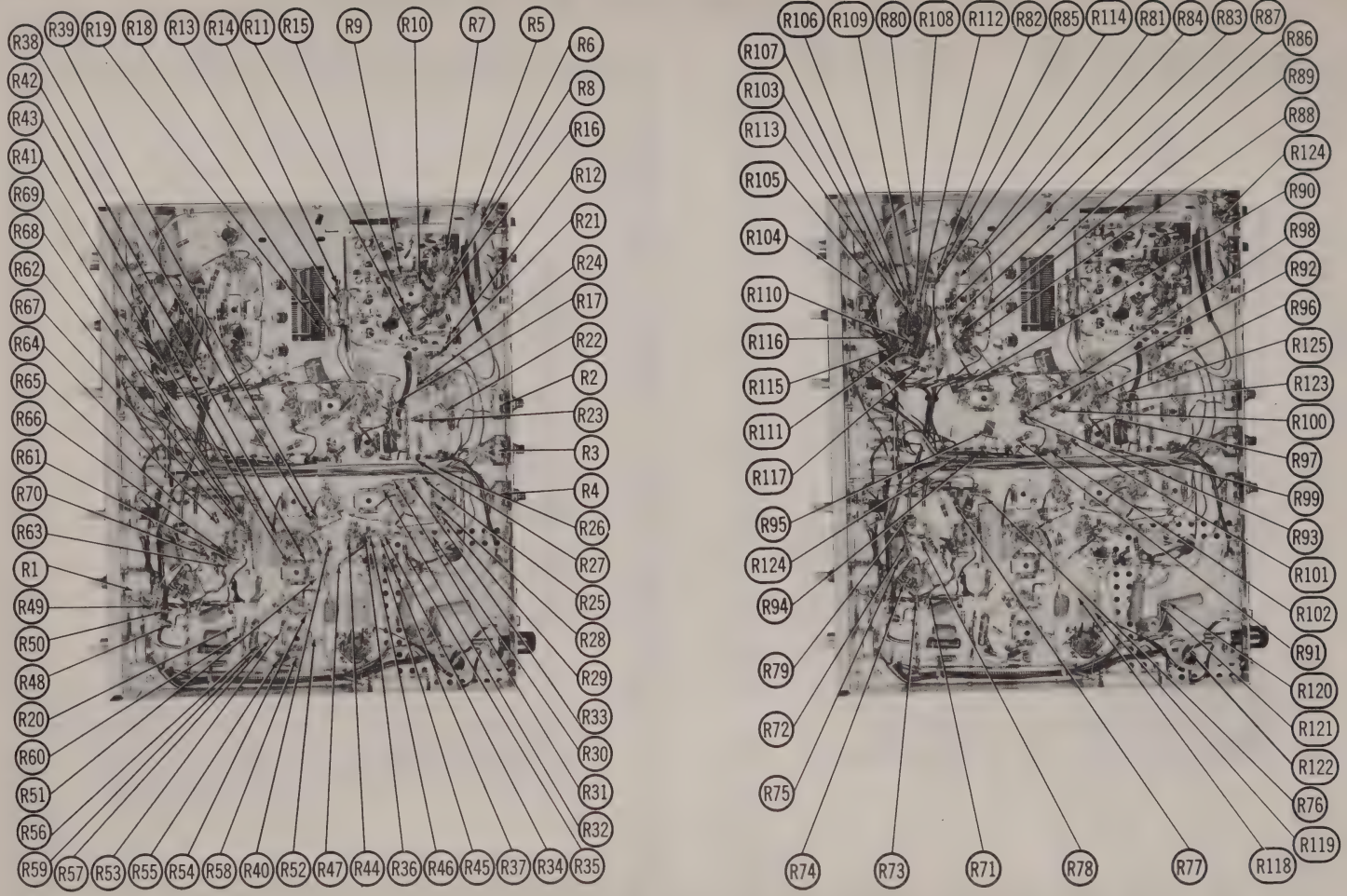
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1765-K (7½ Ft. Length)

DIAL CORD STRINGING



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

AM ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

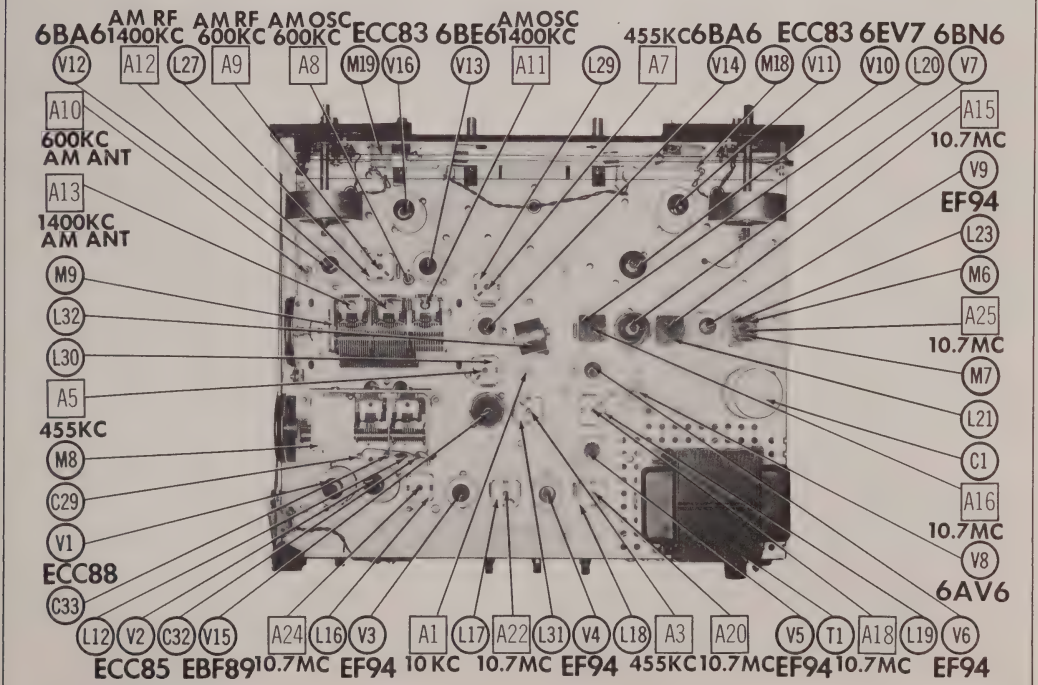
Use only enough generator output to provide a usable indication.
Suggested Alignment Tools:

A1	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298 WALSCO #2516, 2518, 2519
A2 thru A7, A9, A17 thru A24	GENERAL CEMENT #5097, 8727 WALSCO #2515
A8, A14, A15, A16, A25, A26, A27, A28	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A11, A12, A13, A30, A31	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A29	GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089 WALSCO #2512, 2525, 2528

AM ALIGNMENT — SELECTOR IN AM POSITION

Short Point Ⓐ to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (Plate) of V15. Low side to chassis.	10KC	(AM) Point of non-interference.	AC probe across AM main output jack.	A1	Adjust for MINIMUM deflection.
2.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ 30% AM)	"	"	A2, A3, A4, A5, A6, A7	Adjust for maximum deflection.
3.	Across AM antenna terminal with 220mmf in high side.	600KC	600KC	"	A8, A9, A10	Adjust for maximum deflection. A10 is adjusted by moving adjustable turns on loopstick.
4.	"	1400KC	1400KC	"	A11, A12, A13	Adjust for maximum deflection. Repeat Steps 3 and 4.



CHASSIS—TOP VIEW

FM ALIGNMENT INSTRUCTIONS

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

AFC Off.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to ungrounded tube shield over FM Mixer-Osc. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓑ. Common to chassis.	A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A25	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

AFC Off.
Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to ungrounded tube shield over FM Mixer-Osc. tube. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓑ. Low side to chassis.	A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C4.
6.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A25	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

AFC Off.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	90MC (Unmod.)	(FM) 90MC	DC probe to point Ⓑ. Common to chassis.	A26, A27, A28	Adjust for maximum deflection.
8.	"	106MC	106MC	"	A29, A30, A31	Adjust for maximum deflection. Repeat Steps 7 and 8.

FIG. 1

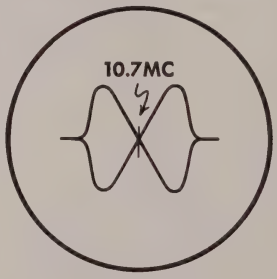
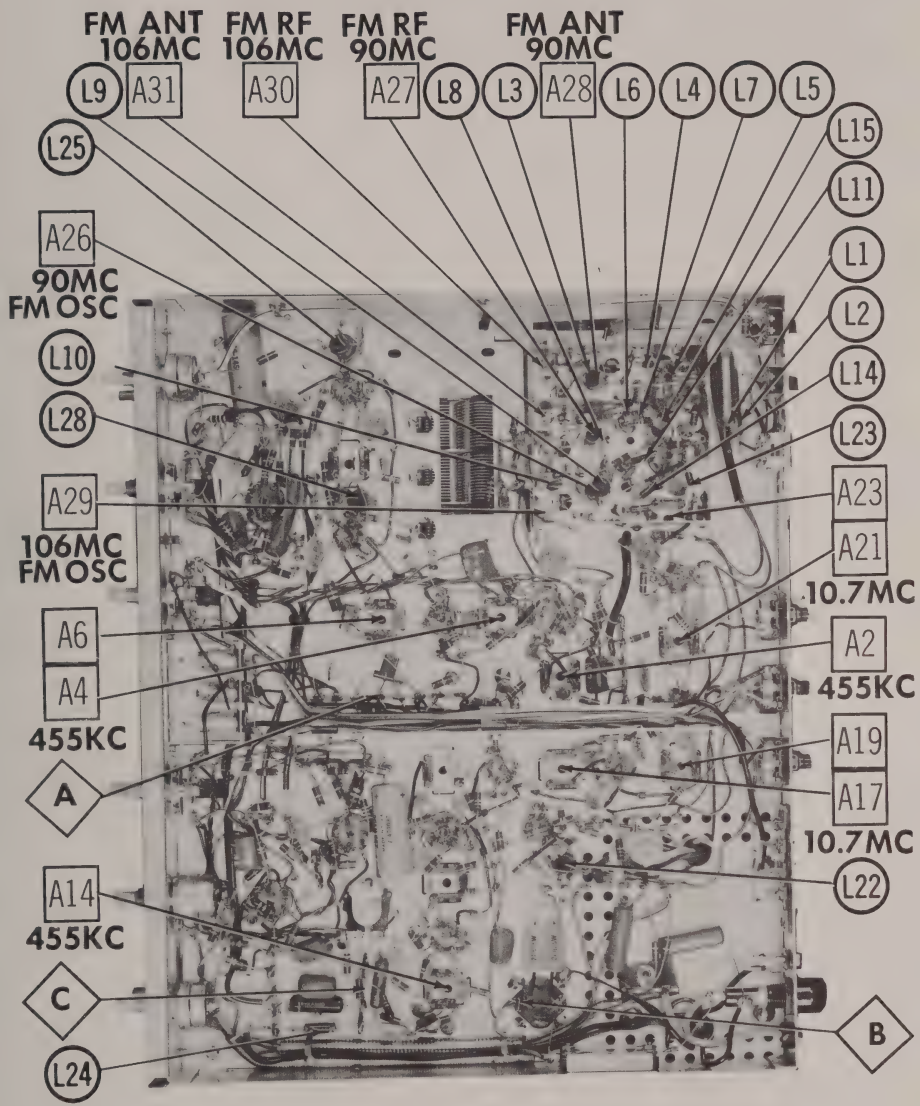
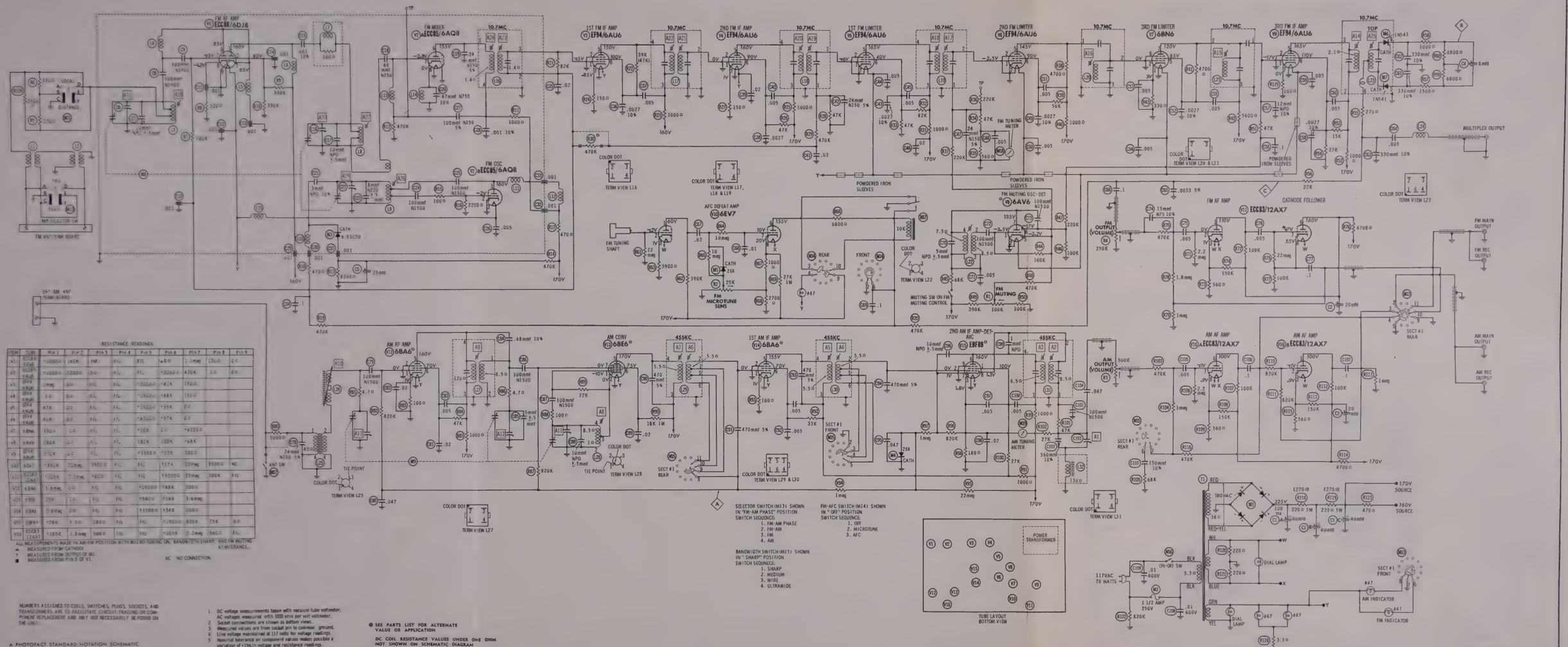


FIG. 2



CHASSIS BOTTOM VIEW-ALIGN. & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC88 6DJ8	*10000Ω	160K	INF.	FIL.	FIL.	∞Ω	1.1meg	12kΩ	0Ω
V2	ECC85 6AQ8	*10000Ω	22000Ω	0Ω	FIL.	FIL.	*22000Ω	470K	1Ω	0Ω
V3	EF94 6AU6	1meg	0Ω	FIL.	FIL.		*22000Ω	42K	150Ω	
V4	EF94 6AU6	1Ω	0Ω	FIL.	FIL.		*22000Ω	48K	150Ω	
V5	EF94 6AU6	47K	0Ω	FIL.	FIL.		*15000Ω	35K	0Ω	
V6	EF94 6AU6	60K	0Ω	FIL.	FIL.		*82000Ω	57K	0Ω	
V7	6BN6	330Ω	1Ω	FIL.	FIL.		*10K	0Ω	*6100Ω	
V8	EF94 6AU6	280K	0Ω	FIL.	FIL.		182K	100K	68K	
V9	6AV6	370K	0Ω	FIL.	FIL.		*15000Ω	13K	100Ω	
V10	6EV7	*35K	20meg	3900Ω	FIL.	FIL.	*17K	10meg	3300Ω	NC
V11	ECC83 12AX7	*105K	1.8meg	560Ω	FIL.	FIL.	*95000Ω	22meg	100K	FIL.
V12	6BA6	1.8meg	0Ω	FIL.	FIL.		*20000Ω	48K	300Ω	
V13	6BE6	20K	1Ω	FIL.	FIL.		*5400Ω	10K	3.6meg	
V14	6BA6	2.8meg	0Ω	FIL.	FIL.		*11500Ω	34K	300Ω	
V15	EBF89	*28K	5.5Ω	280Ω	FIL.	FIL.	*10000Ω	820K	75K	0Ω
V16	ECC83 12AX7	*105K	1.8meg	560Ω	FIL.	FIL.	*105K	2.2meg	560Ω	FIL.

ALL MEASUREMENTS MADE IN AM-FM POSITION WITH MICRO-TUNING OFF, BANDWIDTH SHARP, AND FM MUTING AT MIDRANGE.

- MEASURED FROM CATHODE
- MEASURED FROM OUTPUT OF M2.
- MEASURED FROM PIN 3 OF V1.

NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohms per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum; no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

SELECTOR SWITCH (M13) SHOWN IN "FM-AM PHASE" POSITION
SWITCH SEQUENCE:
1. FM-AM PHASE
2. FM-AM
3. FM
4. AM

BANDWIDTH SWITCH (M15) SHOWN IN "SHARP" POSITION
SWITCH SEQUENCE:
1. SHARP
2. MEDIUM
3. WIDE
4. ULTRAWIDE

FM-AFC SWITCH (M14) SHOWN IN "OFF" POSITION
SWITCH SEQUENCE:
1. OFF
2. MICROTUNE
3. AFC

PHOTOFACT® Folder

HARPERS
MODEL UC-228

HARPERS
MODEL UC-228

HARPERS
MODEL UC-228

TRADE NAME	Harpers Model UC-228
IMPORTER	Harpers International, Inc., 315 Fifth Ave., New York 16, N. Y.
TYPE SET	AC Operated 5 Tube BC-SW Receiver
POWER SUPPLY	110 — 120 Volts AC-DC RATING 26 Watts, .26 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 — 1600KC SHORT WAVE 3.9 — 12MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4, A6, A7..... GENERAL CEMENT #8721, 8722
WALSCO #2519

A5, A8, A9, A10..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ 30% AM)	(BC) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side to hank antenna. Low side to chassis.	1600KC	1600KC	"	A5	"
3.	"	600KC	600KC	"	A6, A7	"
4.	"	1400KC	1400KC Signal.	"	A8	"
5.	"	12MC	(SW) 12MC	"	A9, A10	"

SET 560 FOLDER 9

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG875

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Converter	12BE6
V2	IF Amplifier	12BA6
V3	Det. -AVC-AF Amp.	12AV6
V4	Output	35C5
V5	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA HARPERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	40	150		PRS3650	BBRT44215	QT3-5	TCT3116	TDLT-4	TVA-3450
B	40	150							
C	20	150							
C2	20	25		PTT81	NLW20-25	MT1-9	TT25X20	TD-20-150	TE-1206

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.002 400V		P488N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C4A								
B								
C								
D								
C5	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C6	440 5%				5R5T43	CM-19B-431J		MS-343
C7	.005 5%		1464-005		1R5D5	CM-20B-502J	MCE465	MS-25
C8	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C9	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C10	200		SI 200	D6-201	L10T2	CCD-202	GP320	10TS-T20
C11	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C12	.01 400V		P488N-01	D6-103	CUB4S1	4DP-3-103	GEM-411	4TM-S10
C13	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C14	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C15	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C16	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA HARPERS PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		AB-60				Volume
B	Shaft			AK-29				
C	Switch			KR-3				Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

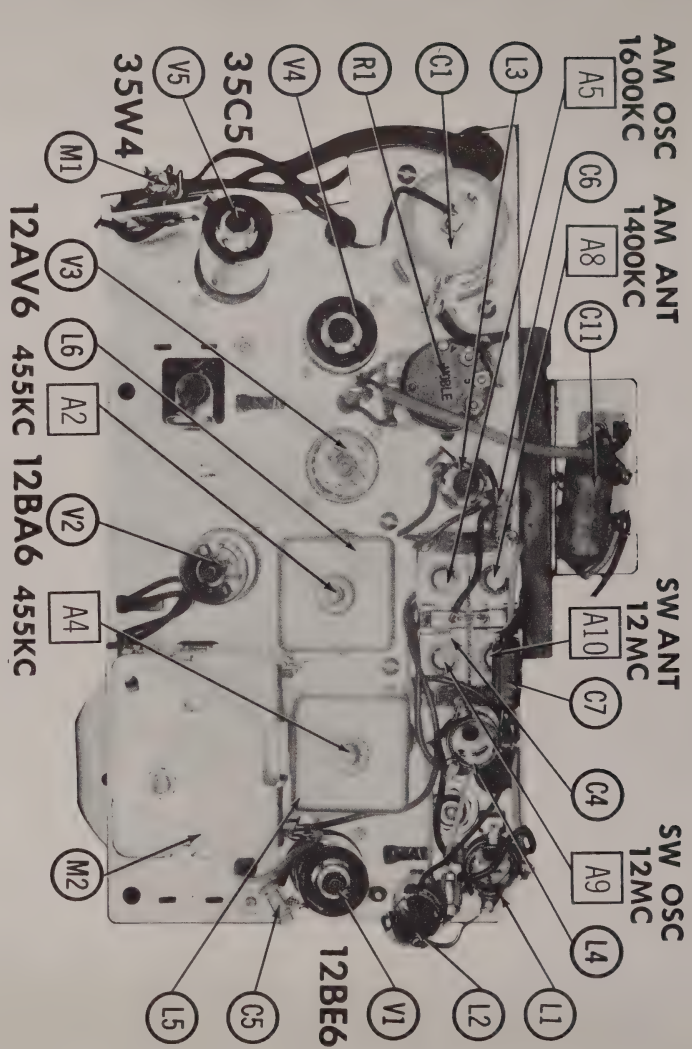
ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	20K			
R3	2meg			
R4	100Ω			
R5	5meg			
R6	250K			
R7	500K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	150Ω 1W			
R9	200Ω 1W			
R10	800Ω 1W			
R11	100Ω 2W			
R12	50Ω 1W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA HARPERS PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	BC Ant.		BC-380	70-A	RTC-8731	T500	
L2	SW Ant.						
L3	BC Osc.		BC-393	70-OSC	RTC-8647	T512	
L4	SW Osc.						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HARPERS PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L5 L6	Input IF Output IF		BC-352 BC-353	12-C1 12-C2	RTC-8632 RTC-8633	T614 T615	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HARPERS PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2900Ω	6-8Ω				22S86	S-63X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HARPERS PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	PM-404B	4A07Z8	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			HARPERS PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		½A 250V			312.500 (½A 250V)	356001	AGC ½	3833-1

MISCELLANEOUS

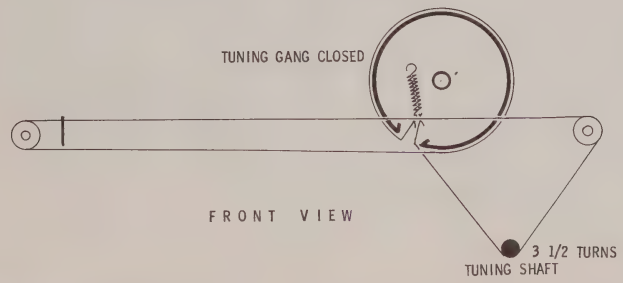
ITEM No.	PART NAME	HARPERS PART No.	NOTES
M2 M3	Tuner Switch		2 Gang Ant. (12—430mmf, Osc. 12—430mmf) Band Selector (DPDT, Slide Type)

WIRING DATA

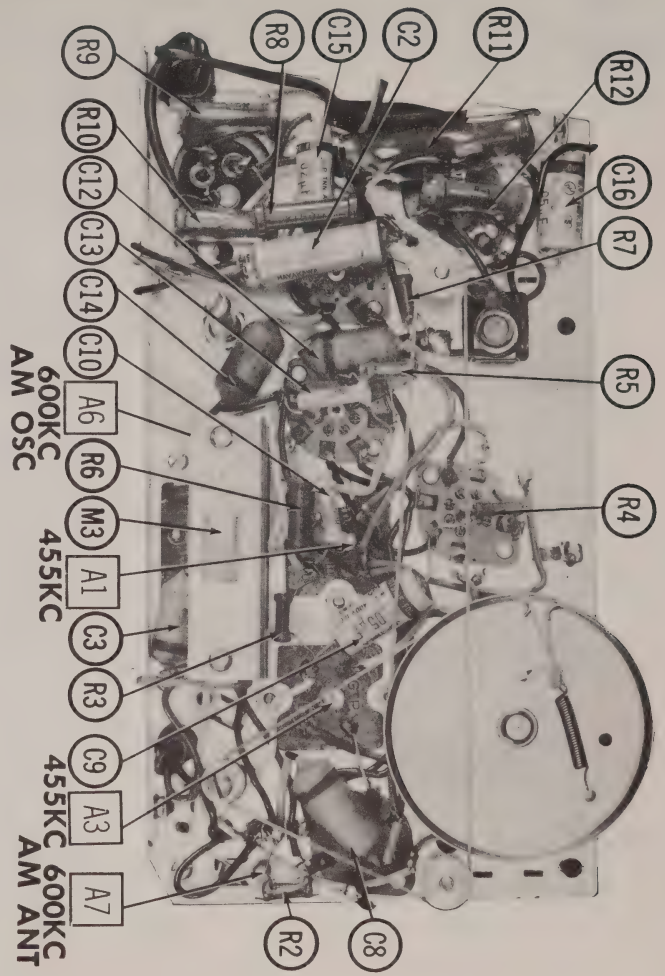
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

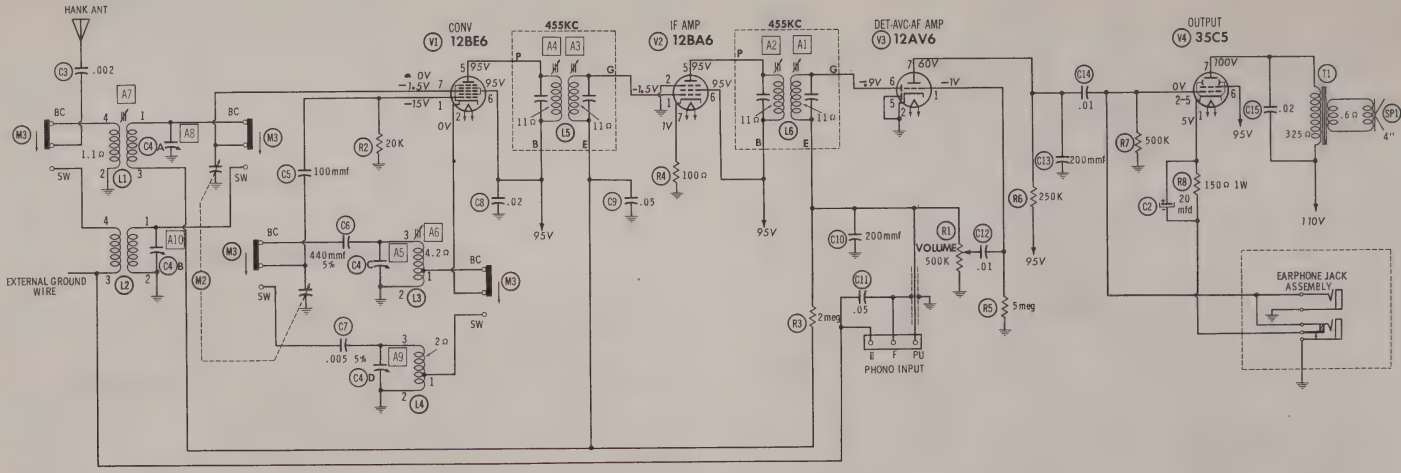
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

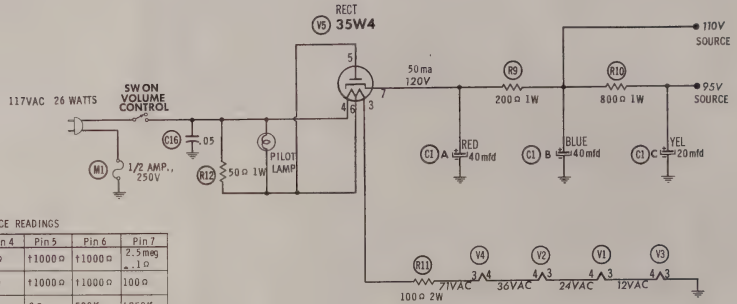
DIAL CORD STRINGING



CHASSIS—BOTTOM VIEW







DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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RESISTANCE READINGS

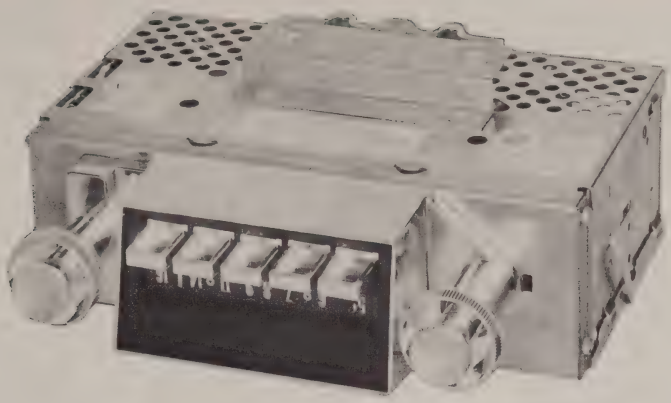
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	20K	.1Ω	15Ω	30Ω	†1000Ω	†1000Ω	2.5meg ¶.1Ω
V2	12BA6	2.5meg	0Ω	30Ω	45Ω	†1000Ω	†1000Ω	100Ω
V3	12AV6	5meg	0Ω	0Ω	15Ω	0Ω	500K	†250K
V4	35C5	150Ω	500K	80Ω	35Ω	500K	†1000Ω	†525Ω
V5	35W4	NC	NC	180Ω	225Ω	225Ω	220Ω	¶ INF

ALL MEASUREMENTS MADE IN "BC" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▲ MEASURED IN SW POSITION.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION

HARPERS MODEL UC-228

PHOTOFACT® Folder

MOTOROLA
MODEL BKA61



TRADE NAME	Motorola Model BKA61 (For 1961 Buick)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Transistorized Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING .6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 — 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A9, A10, A11, A12... GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to collector of RF Amp. Low side to chassis.	262.5KC (400% Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7, A8	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A9, A10, A11 and A12) out of tuning coils. Repeat Step 2.					
3.	Thru dummy to antenna receptacle.	1200KC	Tuner carriage 9/32" from high end stop.	Across voice coil.	A9, A10, A11, A12	Adjust for maximum output. Repeat Steps 2 and 3.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A8 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station.
2. Pull pushbutton out, then press in firmly.
3. Repeat for remaining pushbuttons.

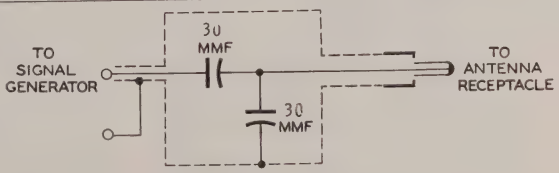


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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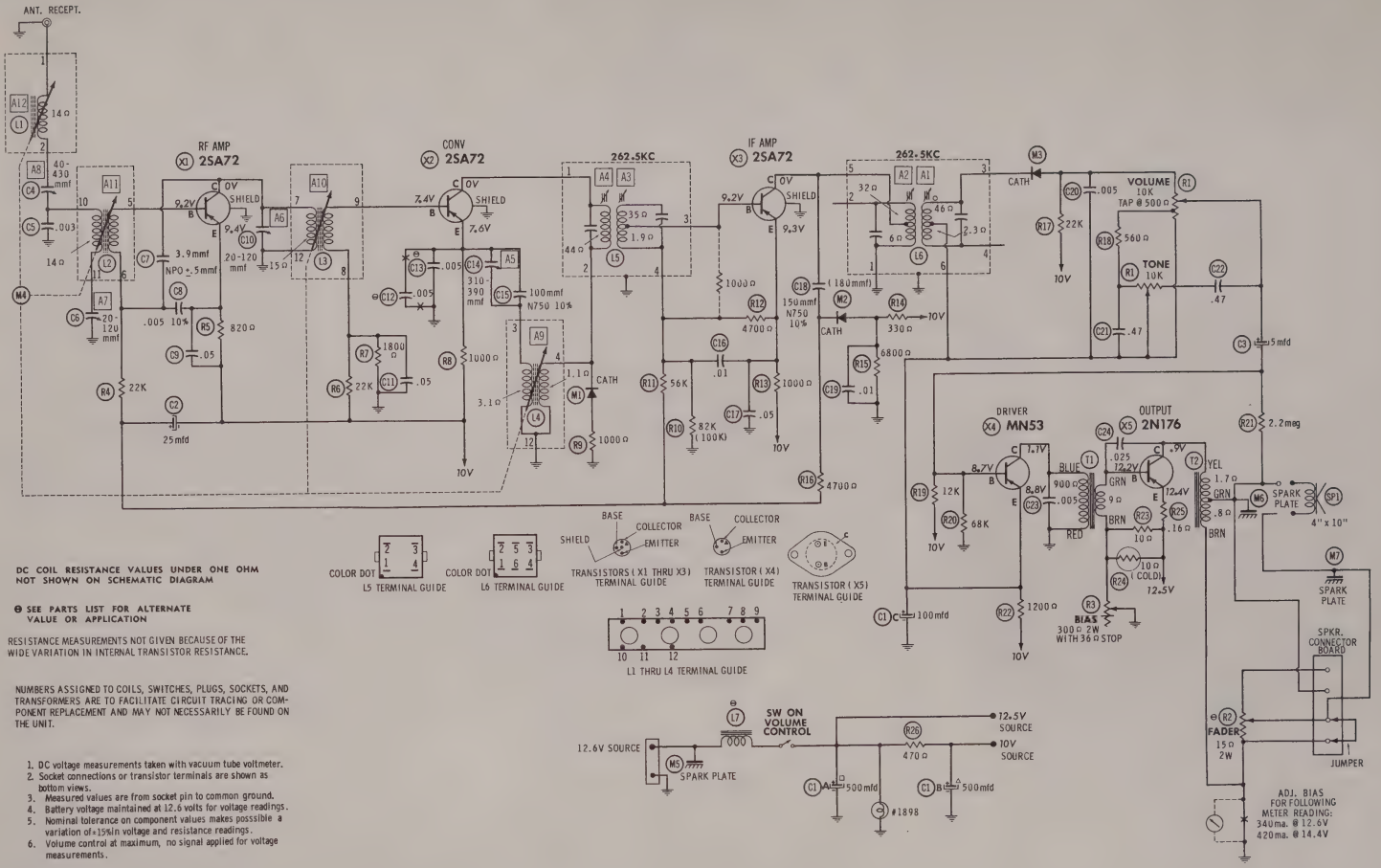
KD956

MOTOROLA
MODEL BKA61
MOTOROLA
MODEL BKA61
SET 560 FOLDER 10



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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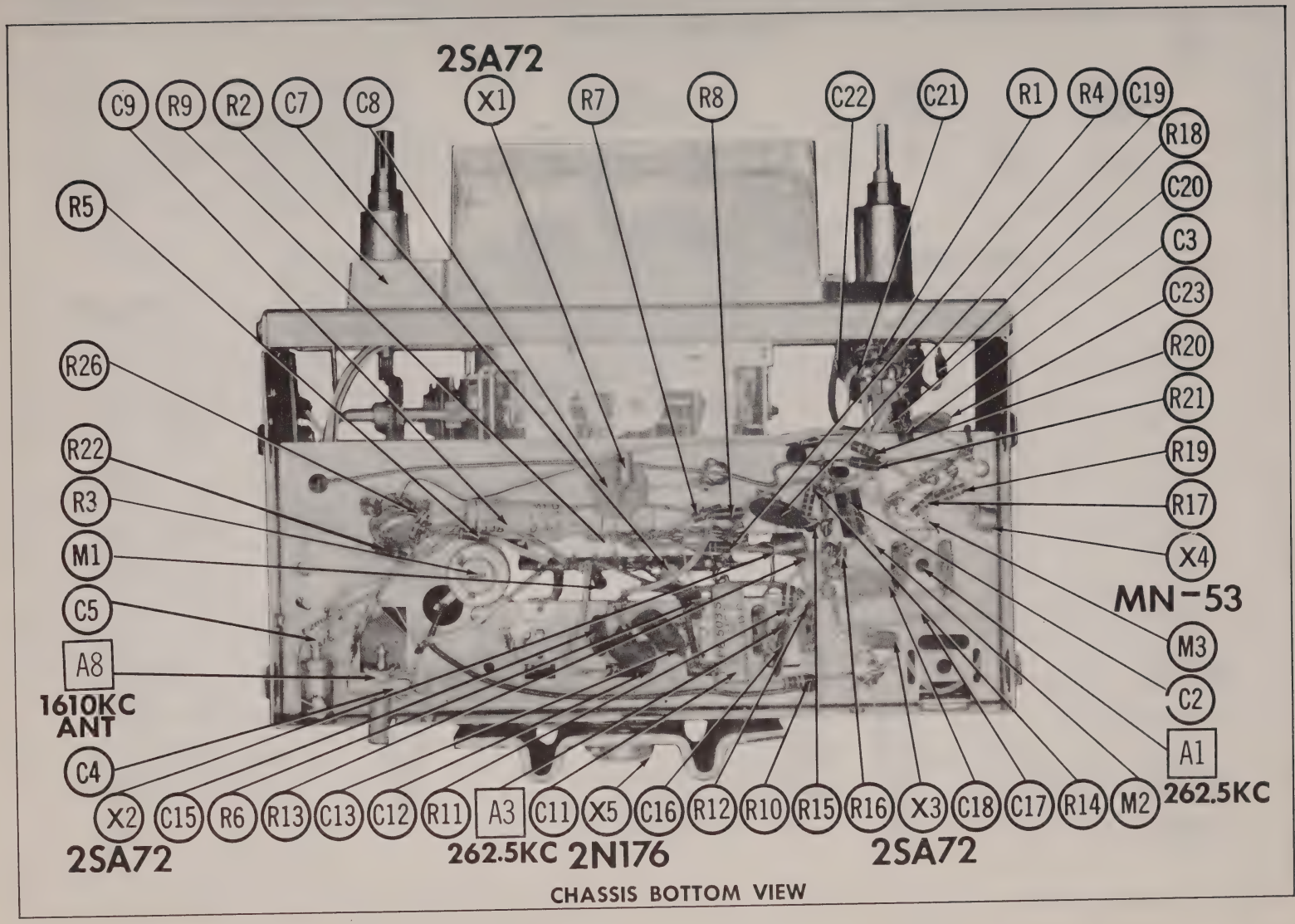
MOTOROLA MODEL BKA61



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SA72	RF Amplifier	2N1637		PNP
X2	2SA72	Converter	2N1639		PNP
X3	2SA72	IF Amplifier	2N1638		PNP
X4	MN-53*	Driver	2N591	2N362	PNP
X5	2N176	Output	2N176		PNP

* Alternate Type 4450.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	■500	16	23B543279	AFH3-00-95	C0005	XC3-48	WP300.85		TVLS-3026.8*
B	▲500	16							
C	100	16							
C2	25	3	23K544540	PTT9	NLW25-3	MT1-10	TT3X25	MLV25-3	TE-1055
C3	5	3	23K544541	PTT4	NLW5-6	MT1-3	TT6X5	MLV5-3	TE-1052.3

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	40-430	#20B64871A01						
C5	.003 200V		P288N-003	D6-302	CUB6D3	6DP-1-302		6PS-D30
C6	20-120	#20K541014				424		
C7	3.9 NPO ± .5mmf				C10V4C			10TCC-V39
C8	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C9	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C10	20-120	#20K541014				424		
C11	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C12	.005 200V	Note 1	P288N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50
C13	.005 200V	Note 1	P288N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50
C14	310-390	#20K541700						
C15	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C18	150 N750 10%	(180)†	N750-DI 150	DTN-150	C10T15U	CCTN-151	CN7-315	10TCU-T15
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	.47 3V			UK-474				HY-130
C22	.47 3V			UK-474				HY-130
C23	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	.025		BPD-025		DPMS6S25	4DP-2-253	GEM-4125	4TM-S25

Note 1. When C13 is .01mfd, C12 is not used.
\# Motorola Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Alternate.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	10K	½	18C64876A01					Tone
B	10K 500Ω Tap	½						Volume
C	Switch							Power Off-On
R2	15Ω	2(WW)	18K544532①					Fader
R3	300Ω 36Ω Stop	2(WW)	18K543493		39-300 *	112-300 *	FL-500 *	Bias

① Some versions may use Part #18B544256.
* Use 39Ω 2W series resistor.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	22K				R16	4700Ω			
R5	820Ω				R17	22K			
R6	22K				R18	560Ω			
R7	1800Ω				R19	12K			
R8	1000Ω				R20	68K			
R9	1000Ω				R21	2.2meg			
R10	82K			(100K) *	R22	1200Ω			
R11	56K				R23	10Ω			
R12	4700Ω				R24	10Ω Cold			Pt. #6K543800
R13	1000Ω				R25	.16Ω			Pt. #17A64856A01
R14	330Ω				R26	470Ω			
R15	6800Ω								

* Alternate Value.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	24K563896 ①					① Part of M4
L2	Ant.	24B40431A02 ①					
L3	RF	24B40431A01 ①					
L4	Osc.	24B40430A01 ①					
L5	Input IF	24B64861A03					
L6	Output IF	24B64861A02					

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L7	.6A	.4Ω	.001HY	25B64889A01 ①					① Alt. #25B64839A01

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.5	1	25K543841					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	40Ω Tap@ 3-4Ω	25K544271					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"x 10"	PM	3-4Ω	50C64850A01	410A2	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M1		48K544539		1N295	Limiter (Pigtail)
M2		48K544539		1N295	AVC
M3		48K544539		1N295	Detector

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuner	77D40428A01	(AT-349) Complete
M5	Spark Plate	64K530177	
M6	Spark Plate	64K561877	
M7	Spark Plate	64K561877	

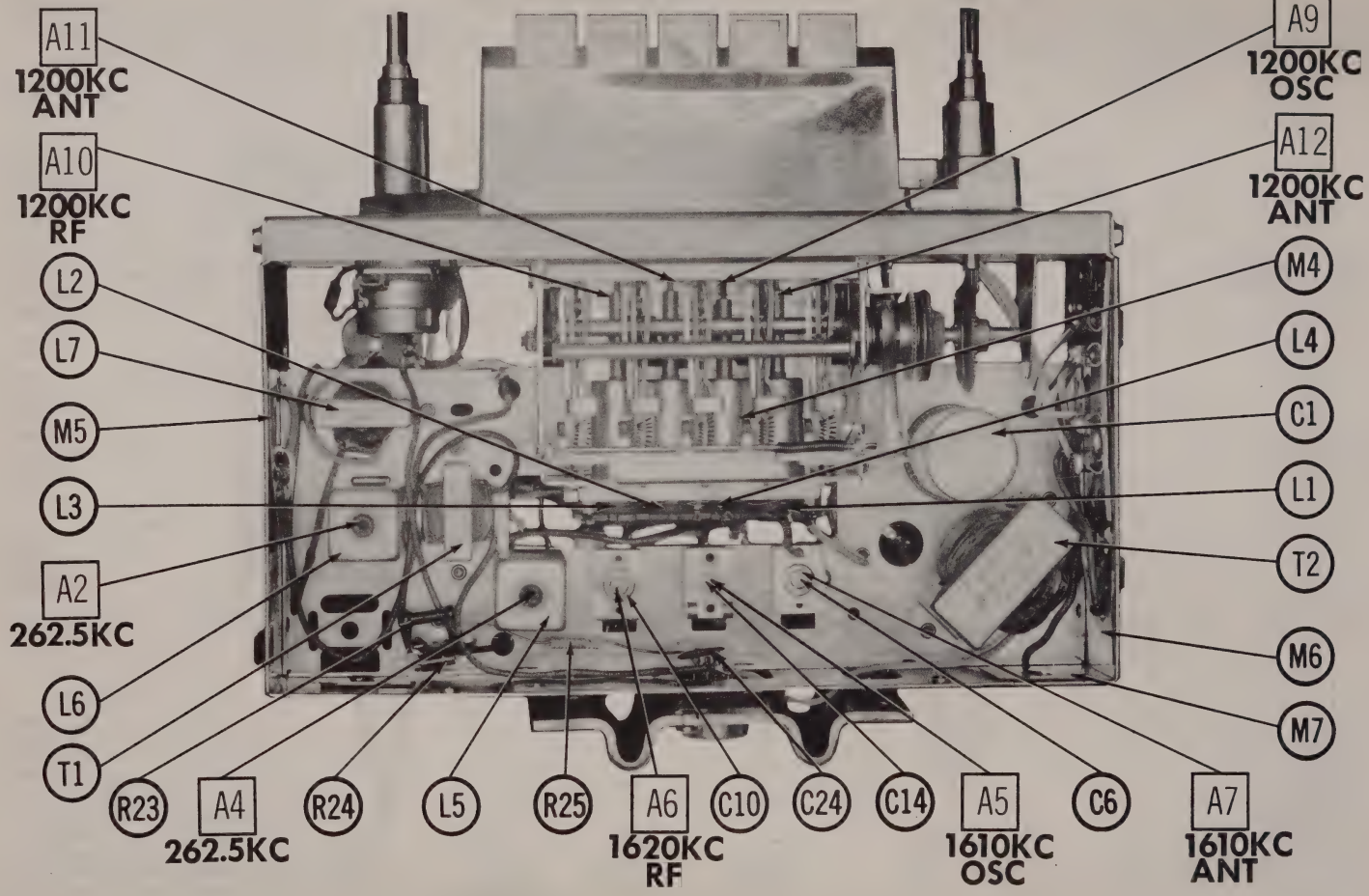
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	34B64868A01	
Dial Pointer	1K564916	
Knob	36B544225	Tuning, Volume
Knob	36B64862A01	Tone, Speaker
Pushbutton	38C40416A04	(1st, 3rd, and 5th)
Pushbutton	38C40416A03	(2nd, 4th)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661



CHASSIS TOP VIEW

PHOTOFACT® Folder

MOTOROLA MODELS SK40B, B-1, M, M-1, W, W-1, SK41CW (Ch. HS-833A, B, C, D)

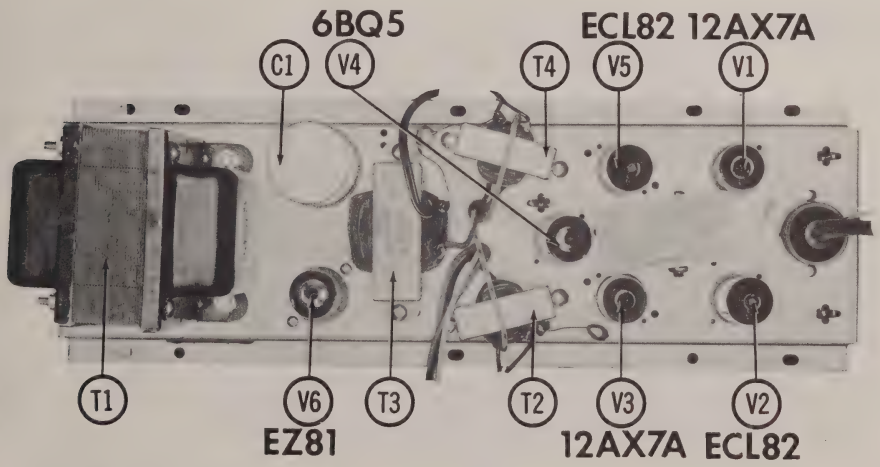
MOTOROLA MODELS SK40B, B-1, M, M-1, W, W-1, SK41CW (Ch. HS-833A, B, C, D)

MODEL SK40W-1

TRADE NAME	Motorola Models SK40B, SK40B-1, SK40M, SK40M-1, SK40W, SK40W-1, SK41CW (Ch. HS-833A, HS-833B, HS-833C, HS-833D)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated 6 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 77 Watts, .75 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER BR12RC – SEE SIMILAR B.S.R. UA12–PHOTOFACT SET 465 FOLDER 6

FOR SERVICE INFORMATION ON RECORD CHANGER VM42RC USED IN MODEL SK40-1 SERIES OR RECORD CHANGER VM34RC USED IN MODEL SK41CW – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12



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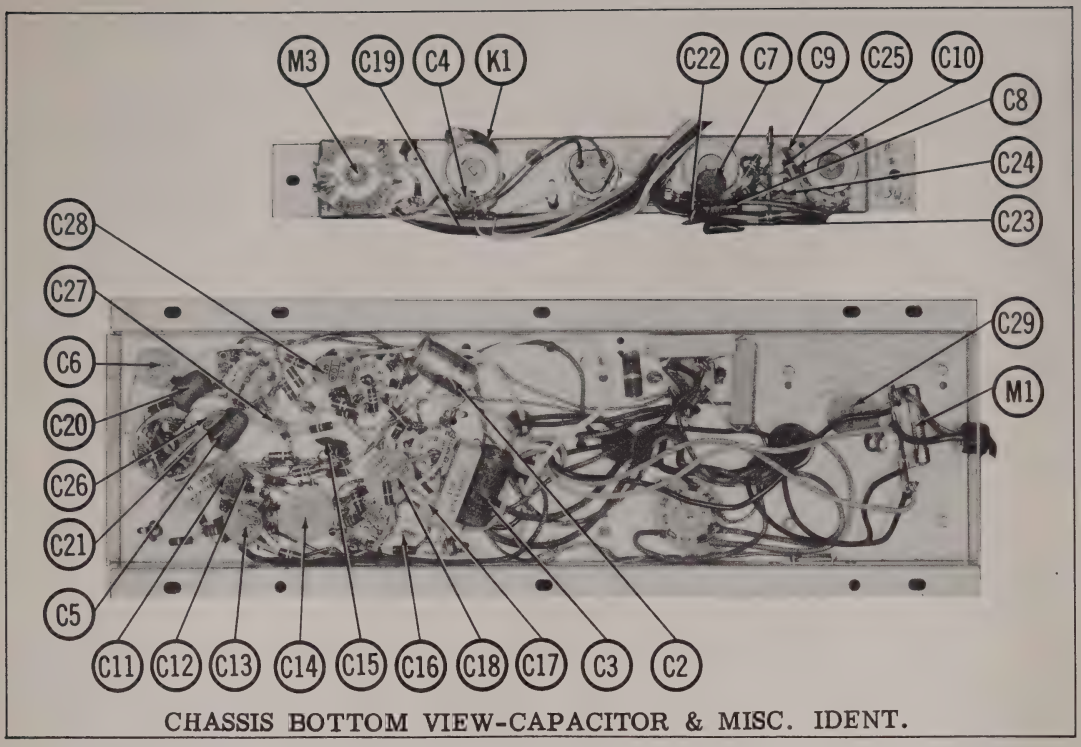
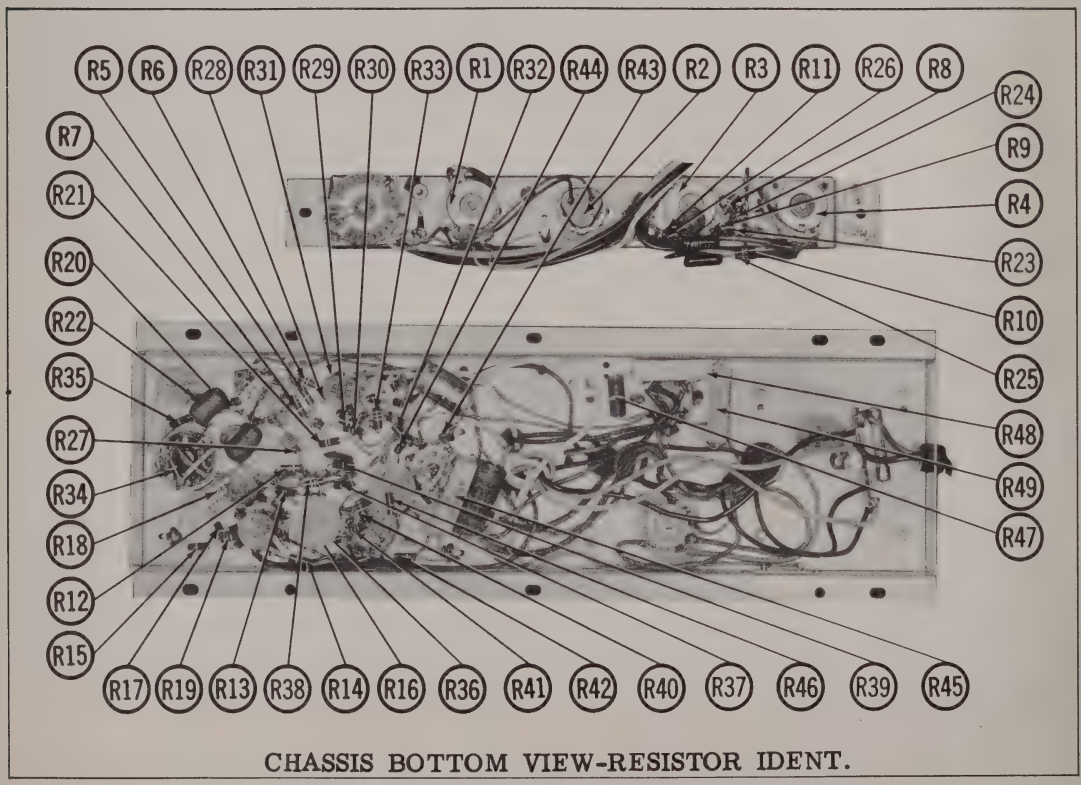
KT800

SET 560 FOLDER 11



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

PHOTOFACT® Folder with CIRCUITRACE®

OLYMPIC MODEL 553

OLYMPIC MODEL 553

OLYMPIC MODEL 553

TRADE NAME	Olympic Model 553
MANUFACTURER	Olympic, A Div. of The Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC-DC Operated 5 Tube AM Receiver
POWER SUPPLY	110 – 120 Volts AC-DC
TUNING RANGE—BROADCAST	540 – 1650KC RATING 26 Watts, .25 Amp. @117 Volts AC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4.....GENERAL CEMENT #5097, 8727
WALSCO #2515

A5 A7.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1650KC	"	"	A5	"
3.	"	600KC	"	"	A6	"
4.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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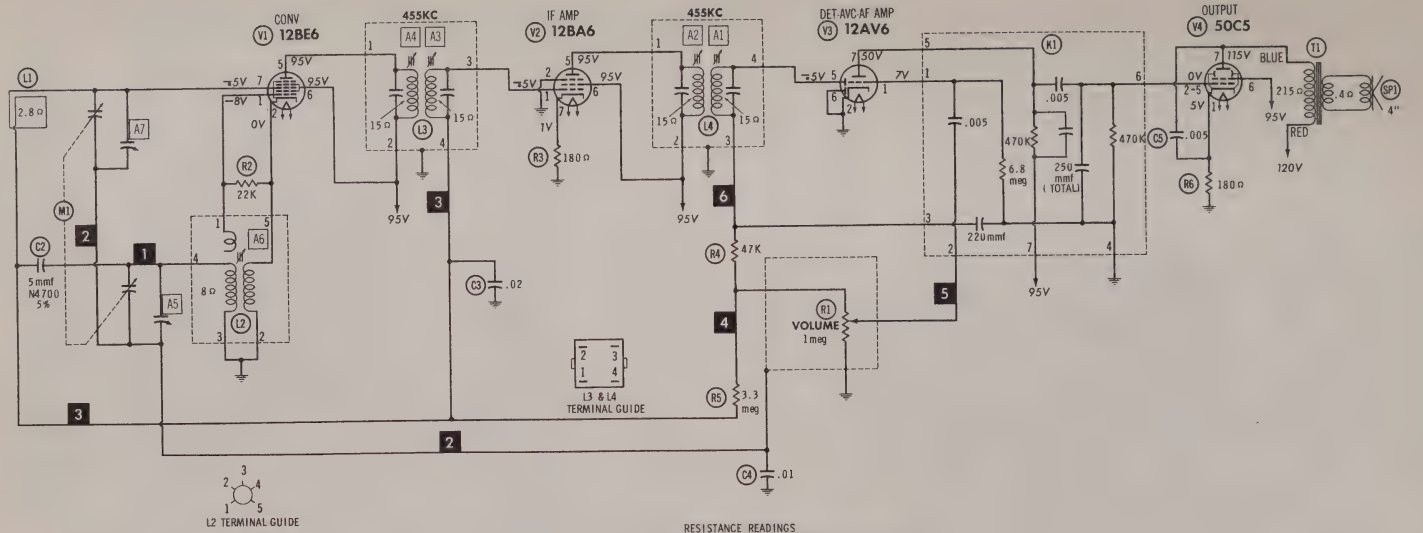
KG992

SET 560 FOLDER 12



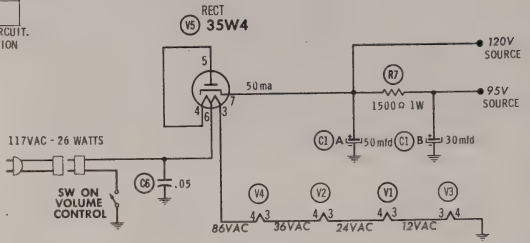
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	0Ω	10Ω	20Ω	†1500Ω	†1500Ω	4.3meg
V2	12BA6	4.3meg	0Ω	20Ω	30Ω	†1500Ω	†1500Ω	180Ω
V3	12AV6	6.8meg	0Ω	10Ω	0Ω	1meg	0Ω	†470K
V4	50C5	180Ω	470K	30Ω	90Ω	NC	†1500Ω	†215Ω
V5	35W4	NC	NC	90Ω	120Ω	120Ω	115Ω	¶ INF

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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OLYMPIC
MODEL 553

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12BE6	V4	Output	50C5
V2	IF Amplifier	12BA6	V5	Rectifier	35W4
V3	Det. -AVC-AF Amp.	12AV6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	50	150	COP30794	PR2-030	BBRD5315	QT2-7	PWD211	TDLD-8	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	5 N4700 5%					*		
C3	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C4	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C6	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	1	PTP30783				P2-16A-S	Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	22K				R5	3.3meg			
R3	180Ω				R6	180Ω			
R4	47K				R7	1500Ω 1W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loop Ant.	L PP30785					
L2	Osc.	CLP30784					
L3	Input IF	TRP30786	BC-356	13-PC1	RTC-8641	T614	
L4	Output IF	TRP30787	BC-357	13-PC2	RTC-8642	T615	

PRINTED BOARD

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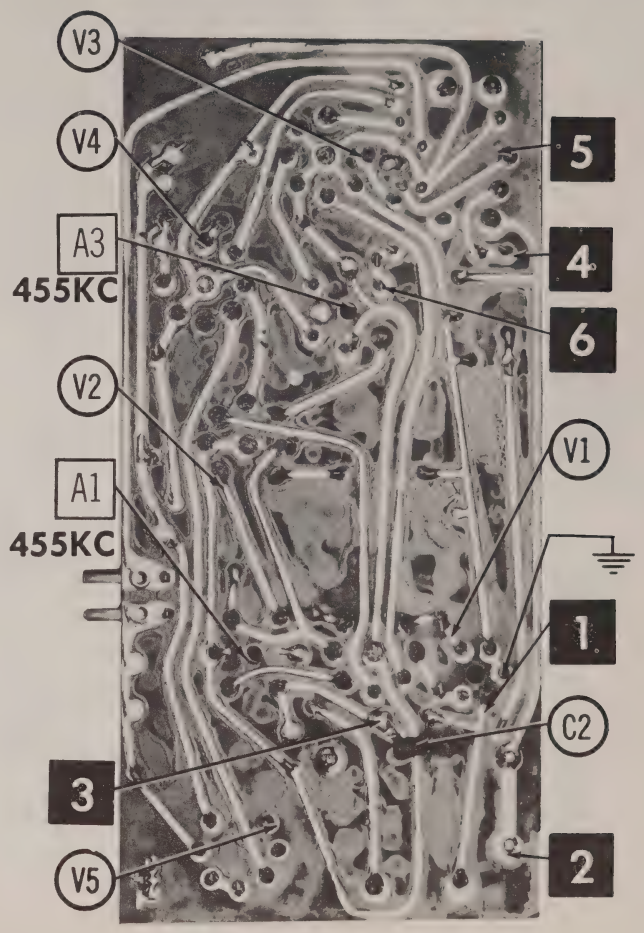
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3400Ω	3-4Ω	(Part of SP1)	A-3025	A-3332	24S53	S-16X①	① Tape Tap

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SKP30792 *	4A05	* Includes T1

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, .005mfd, .005mfd, 470K, 470K, 6.8meg	PCP30788	Aerovox PA-512-3 Centralab PC-158 Mallory MS-107 (Note 1) Sprague DT-5

Note 1. Reverse Leads 5 & 6.

MISCELLANEOUS

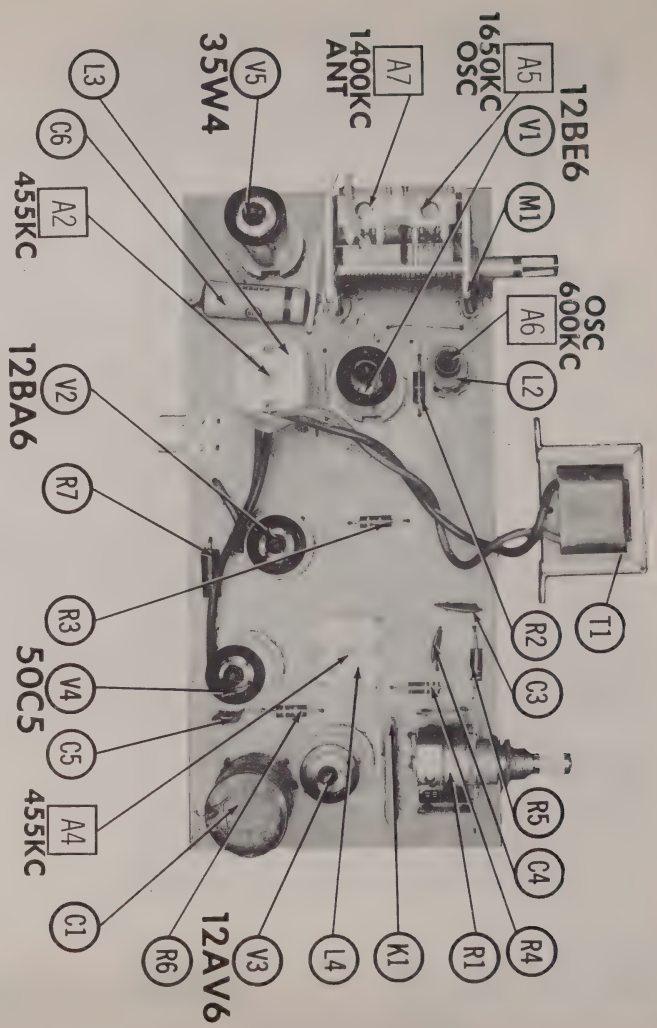
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1	Tuning Cap	CVP30772	2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW



PHOTOFACT® Folder

**PERPETUUM-EBNER
MODEL 99V**

PERPETUUM-EBNER
MODEL 99V

PERPETUUM-EBNER
MODEL 99V

TRADE NAME	P.E. Model 99V
IMPORTER	P. E. Phonograph Corp., 64-01 Woodside Ave., Woodside, N. Y.
TYPE SET	AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110/125/220/240 Volts AC, 60 Cycles RATING 40 Watts, .38 Amp. @117 Volts (on 110V Tap) Less Motor

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE PERPETUUM EBNER REX DELUXE — PHOTOFACT SET 409 FOLDER 14 OR RECORD CHANGER MANUAL RC-12

SET 560 FOLDER 13

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KT741

DATE 12—61 SET 560 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 1 Output	ECL82	V2	Channel 2 AF Amp. - Channel 2 Output	ECL82

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	P. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	350		PR3-025	BBRT0235	TCD78	TDLD-31	TVAS-2745*	
B	50	350							
C2	4	350		PRS1600	BR435	TC697	TD-4-450	TVA-1601	
C3	4	350		PRS1600	BR435	TC697	TD-4-450	TVA-1601	
C4	25	3		PTT9	NLW25-3	TT3X25	MLV25-3	TE-1055	
C5	50	30		PTT98	NLW50-50	TC39	MLV50-50	TE-1307	
C6	25	3		PTT9	NLW25-3	TT3X25	MLV25-3	TE-1055	
C7	50	30		PTT98	NLW50-50	TC39	MLV50-50	TE-1307	
C8	5	12NP		PRS7405	BBR4-150	TCN505		TVANS-1303.1*	
C9	5	12NP		PRS7405	BBR4-150	TCN505		TVANS-1303.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

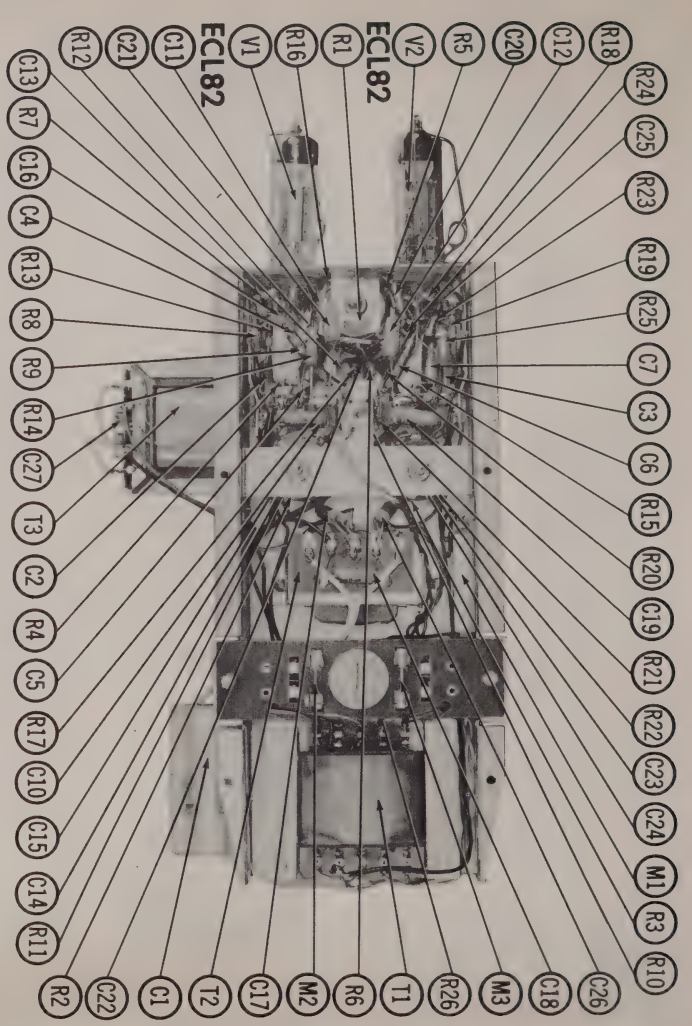
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	.0022 500V		P688N-0022	D6-0022	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C11	30		SI 30	D6-300	L10Q3	CCD-300	GP430	10TS-Q30
C12	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C13	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C14	20		SI 20	D6-200	L10Q2	CCD-200	GP420	10TS-Q20
C15	.0001 500V		P688N-0001	D6-101	CUB6T1	CCD-101	GP310	6TM-T10
C16	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C17	.0033 500V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C18	.001 1000V		P1088N-001	DD-102	CUB10D1	16DP-2-102	GEM-1021	10TM-D10
C19	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C20	30		SI 30	D6-300	L10Q3	CCD-300	GP430	10TS-Q30
C21	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C22	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C23	20		SI 20	D6-200	L10Q2	CCD-200	GP420	10TS-Q20
C24	.0001 500V		P688N-0001	D6-101	CUB6T1	CCD-101	GP210	6TM-T10
C25	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C26	.0033 500V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6222	6TM-D33
C27	.001 1000V		P1088N-001	DD-102	CUB10D1	16DP-2-102	GEM-1021	10TM-D10
C28	1.6 170V +10%-5%							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	P. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1, 2meg	1/2						Volume, Channel 1
	290K Tap							
B	1, 2meg	1/2						Volume, Channel 2
	290K Tap							
C	Switch							Power, Off-On
R2A	1meg	1/2						Tone, Channel 1
B	Switch							Push Pull Tone, Channel 1
R3A	1meg	1/2						Tone, Channel 2
B	Switch							Push Pull Tone, Channel 2

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	200K			
R5	50K			
R6	2meg			
R7	200K			
R8	51K			
R9	2200Ω			
R10	150Ω			
R11	180K			
R12	1meg			
R13	100Ω			
R14	390Ω 1W			
R15	200K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R16	50K			
R17	2meg			
R18	200K			
R19	51K			
R20	2200Ω			
R21	150Ω			
R22	180K			
R23	1meg			
R24	100Ω			
R25	390Ω 1W			
R26	500Ω 4W	PW5-500	4G-500	
R27	700Ω 4W	PW4-700	4G-700	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	P. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	240V Tap ② 220V, 125V, 110V, 117V ② .38A (110V Tap)	200V ② .125A AC	6.3VCT ② 1.5A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	P. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5000Ω	3-4Ω		A-3019①	A-8092①	26S49①	S-3X①	① Drill New Mtg. Hole(s).
T3	5000Ω	3-4Ω		A-3019①	A-8092①	26S49①	S-3X①	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	P. E. PART No.	QUAM PART No.	
SP1	6"x 8"	PM	3-4Ω			
SP2	2½"	PM	6-8Ω			
SP3	6"x 8"	PM	3-4Ω			
SP4	2½"	PM	6-8Ω			

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	P. E. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.090A	B250 C100 *	1N1763 ♦	F6 ♦		* Bridge Type Selenium ♦ Silicon, 4 Required

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			P. E. PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		1A 250V					GMA 1	
M3		5/10A* 250V						

* Used when AC input Voltage is 240VAC.

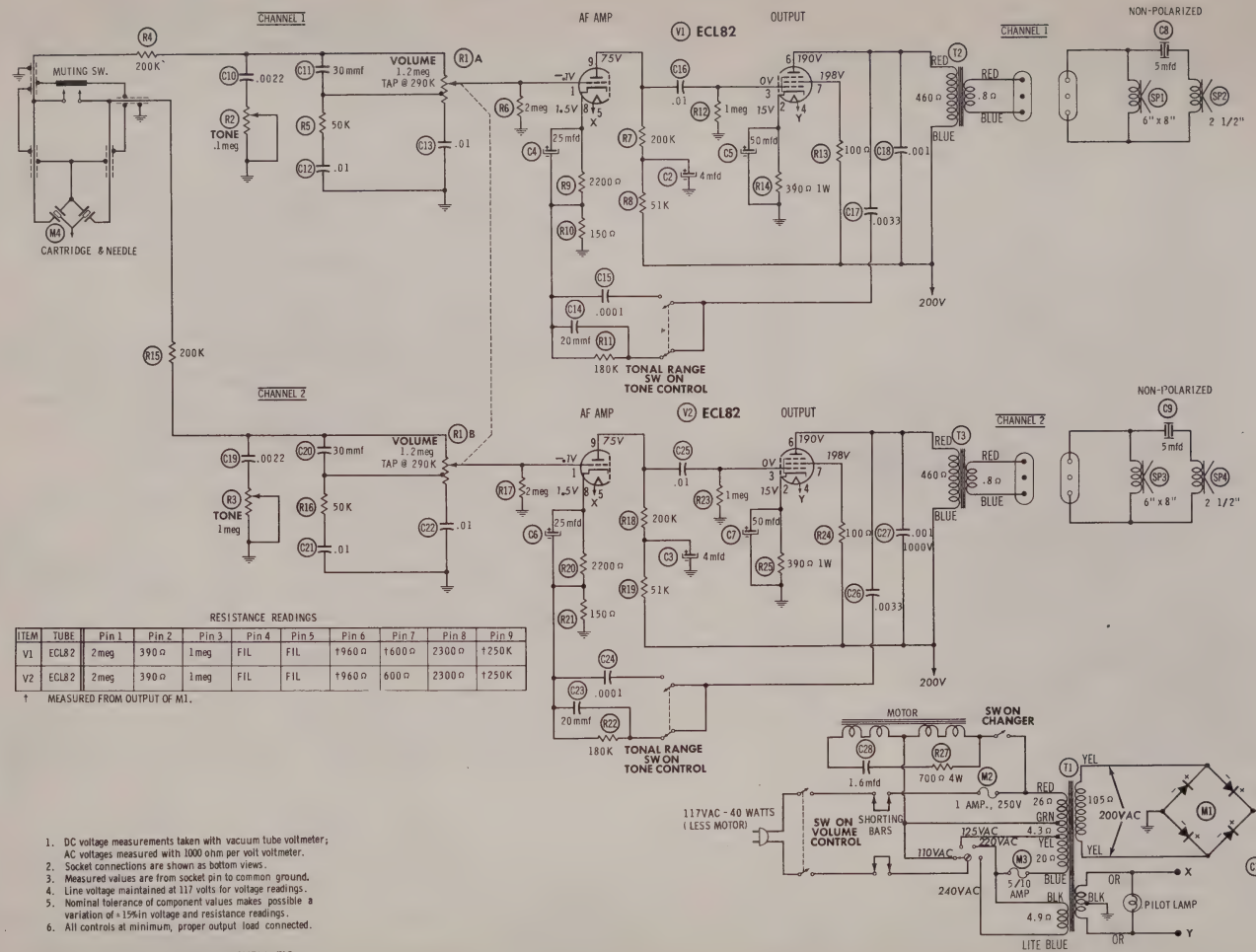
PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	P. E. PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M4			76-TS-TB	N8-7 * & N8-3 *	96T	Not Req.	12TLA-S	N-12TLA-S*	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECL82	2meg	390Ω	1meg	FIL	FIL	†960Ω	†600Ω	2300Ω	†250K
V2	ECL82	2meg	390Ω	1meg	FIL	FIL	†960Ω	600Ω	2300Ω	†250K

† MEASURED FROM OUTPUT OF M1.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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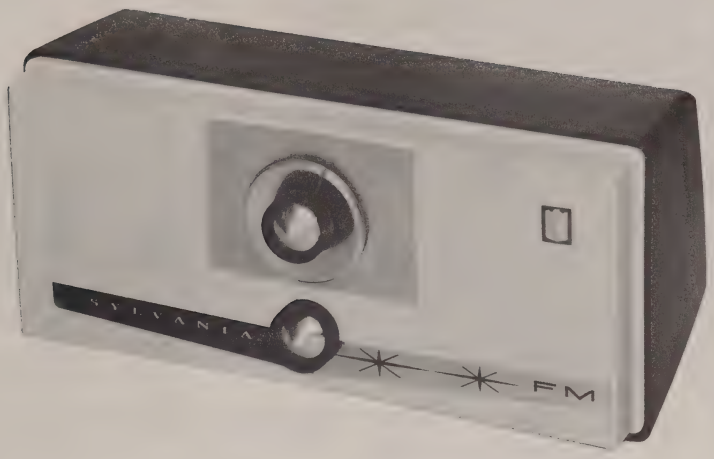
PERPETUUM-EBNER MODEL 99V

PHOTOFACT® Folder

**SYLVANIA MODELS
6F17E, T (Ch. 677-1)**

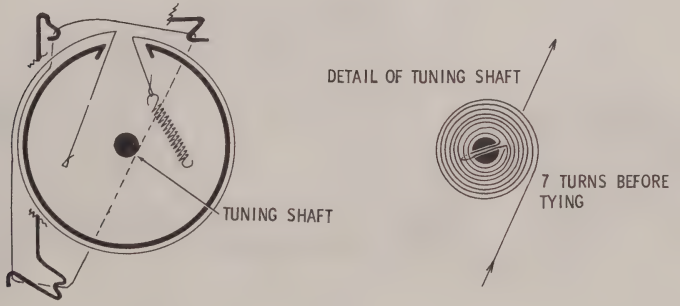
SYLVANIA MODELS
6F17E, T (Ch. 677-1)



SYLVANIA MODELS
6F17E, T (Ch. 677-1)

TRADE NAME	Sylvania Models 6F17E, 6F17T (CH. 677-1)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott Street, Batavia, N.Y.
TYPE SET	AC-DC Operated 6 Tube FM Receiver
POWER SUPPLY	110 — 120 Volts AC-DC
TUNING RANGE—FREQ. MOD.	88 — 108MC RATING 30 Watts, .33 Amp. @117 Volts AC

DIAL CORD STRINGING



FRONT VIEW

SET 560 FOLDER 14

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KI865

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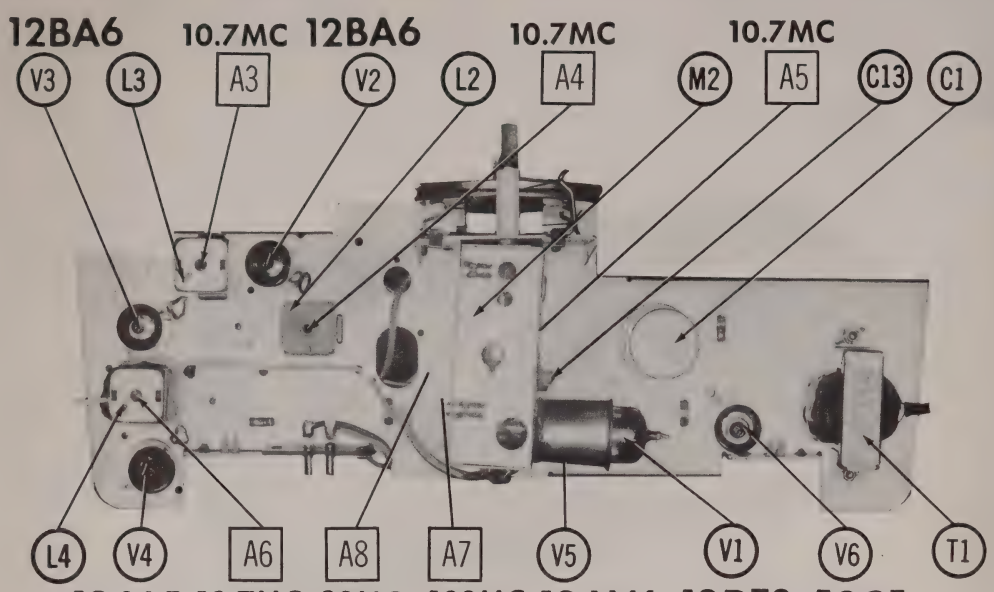
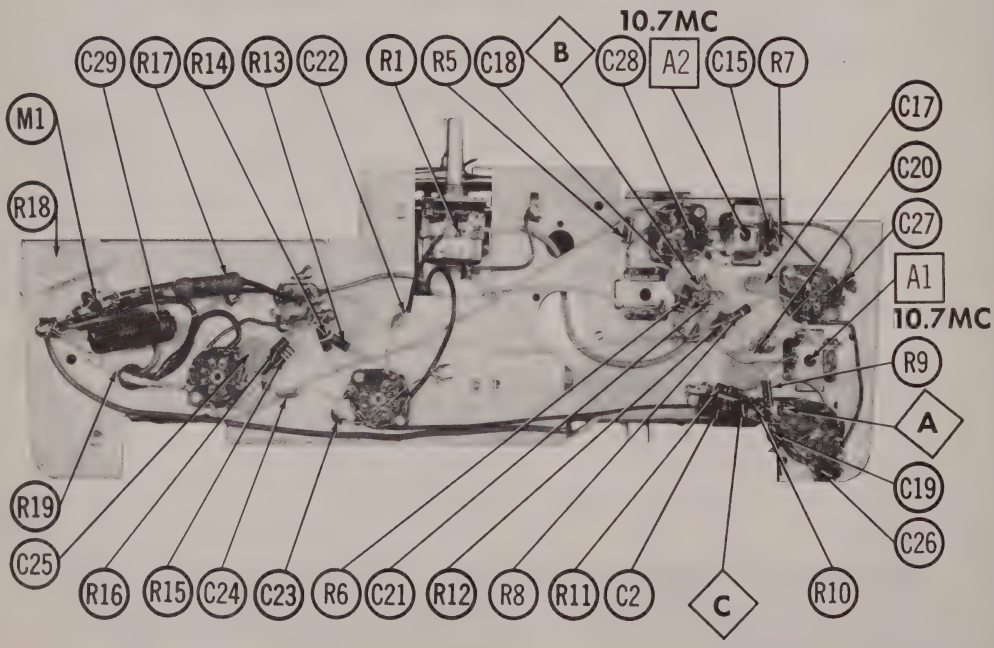


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1, A6.....GENERAL CEMENT #5097, 8727
WALSCO #2515
A2, A3, A4..GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A7, A8....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side to antenna lead. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to antenna lead. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A2, A3, A4, A5	Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
2.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A6	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of cross-over lines.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	High side to antenna lead. Low side to chassis.	108MC (Unmod.)	108MC	DC probe to point Ⓐ. Common to chassis.	A7	Adjust for maximum deflection.
4.	"	88MC	88MC	"	A8	Adjust for maximum deflection while rocking tuning shaft.

FIG. 1

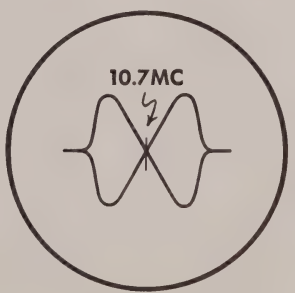


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	RF Amplifier-Converter	12DT8
V2	1st IF Amplifier	12BA6
V3	2nd IF Amplifier	12BA6
V4	Ratio Detector	12AL5
V5	AF Amplifier	12AV6
V6	Output	50C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	■80	150	161-2030	AFH2-18	B0170	XC2-30	WP216.24	TMD-2140	TVL-2442.2
B	▲60	150							
C2	2	50	161-1067	PTT88	NLW2-50	MT1-1	TC302	MLV2-50	TE-1301

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	47		SI 47	D6-470	L10Q47	CCD-470	GP-447	10TS-Q47
C4								
C5	15 N750 5%		N750-DI 15	DTN-15	C10Q15U	CCTN-150	CN7-415	10TCU-Q15
C6	9 N080	(8.5) †				*		
C7								
C8	8.5 N080 5%					*		
C9	68 N750 10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C10	5 N750 5%			DTN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C11	.001		EF-001	MFT-1000		CCF-102	CT280A	
C12	.001		EF-001	MFT-1000		CCF-102	CT280A	
C13	.001		EF-001	MFT-1000		CCF-102	CT280A	
C14	450							
C15	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C16	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C17	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C18	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C19	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	220 N750 10%		N750-DI 220	DTN-220	C10T22U	CCTN-220	CN7-322	10TCU-T22
C21	.0015		BPD-0015	DD-152	BYA10DI5	CCD-152	B-215	5HK-D15
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	220 5%			DTZ-220	22R5T22	CM-19B-221J	CNO-322	10TCC-T22
C24	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C25	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C26	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C27	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C28	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C29	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	470K	½	157-0070	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	2200Ω			
R3	47K			
R4	5600Ω			
R5	1meg			
R6	330Ω			
R7	100K			
R8	330Ω			
R9	1meg			
R10	11K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	11K			
R12	47K			
R13	4.7meg			
R14	220K			
R15	470K			
R16	150Ω			
R17	1000Ω 3W	PW3-1000	3G-1000	
R18	33Ω			
R19	47Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke	①					① Wound on 10mmf
L2	1st IF	121-0125					
L3	2nd IF	122-0126	FM-254	1463	RTC-8599	T633	
L4	Ratio Detector	128-0023	FM-255	1465	RTC-8600	T635	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3100Ω Tap@ 8%	3-4Ω	143-0116	A-3031	A-3336	24S89	S-16X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	539-0517	5A07	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	SYLVANIA PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.070A	517-0029	1N1763	40H	

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M2	Tuner	170-0071	FM Complete (Includes Tuning Cap)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

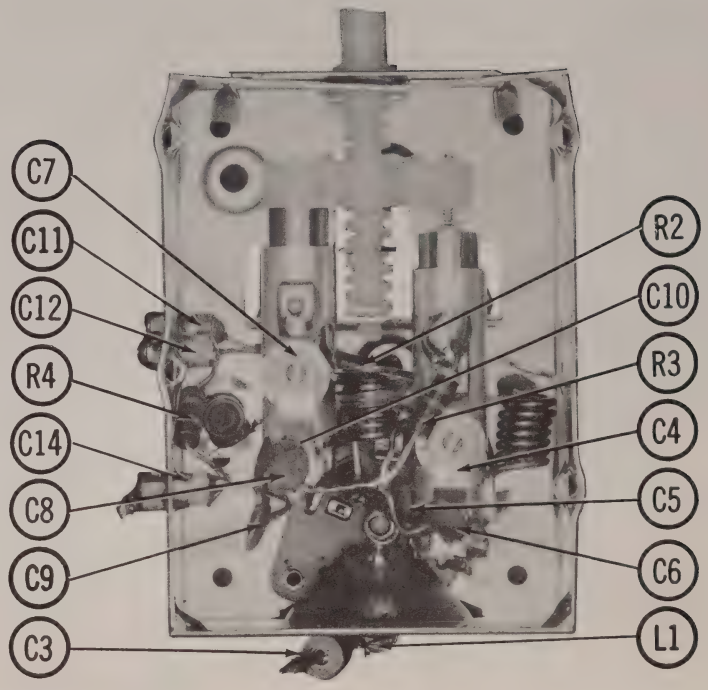
NAME	PART NO.	DESCRIPTION
Tuning Indicator	740-0482	
Knob	740-0479	Tuning, Model 6F17T
Knob	740-0480	Tuning, Model 6F17E
Knob	740-0478	Volume, Model 6F17T
Knob	740-0481	Volume, Model 6F17E
Cabinet Back	813-0171	Model 6F17E
Cabinet Back	813-0172	Model 6F17T
Cabinet Front	774-0035	

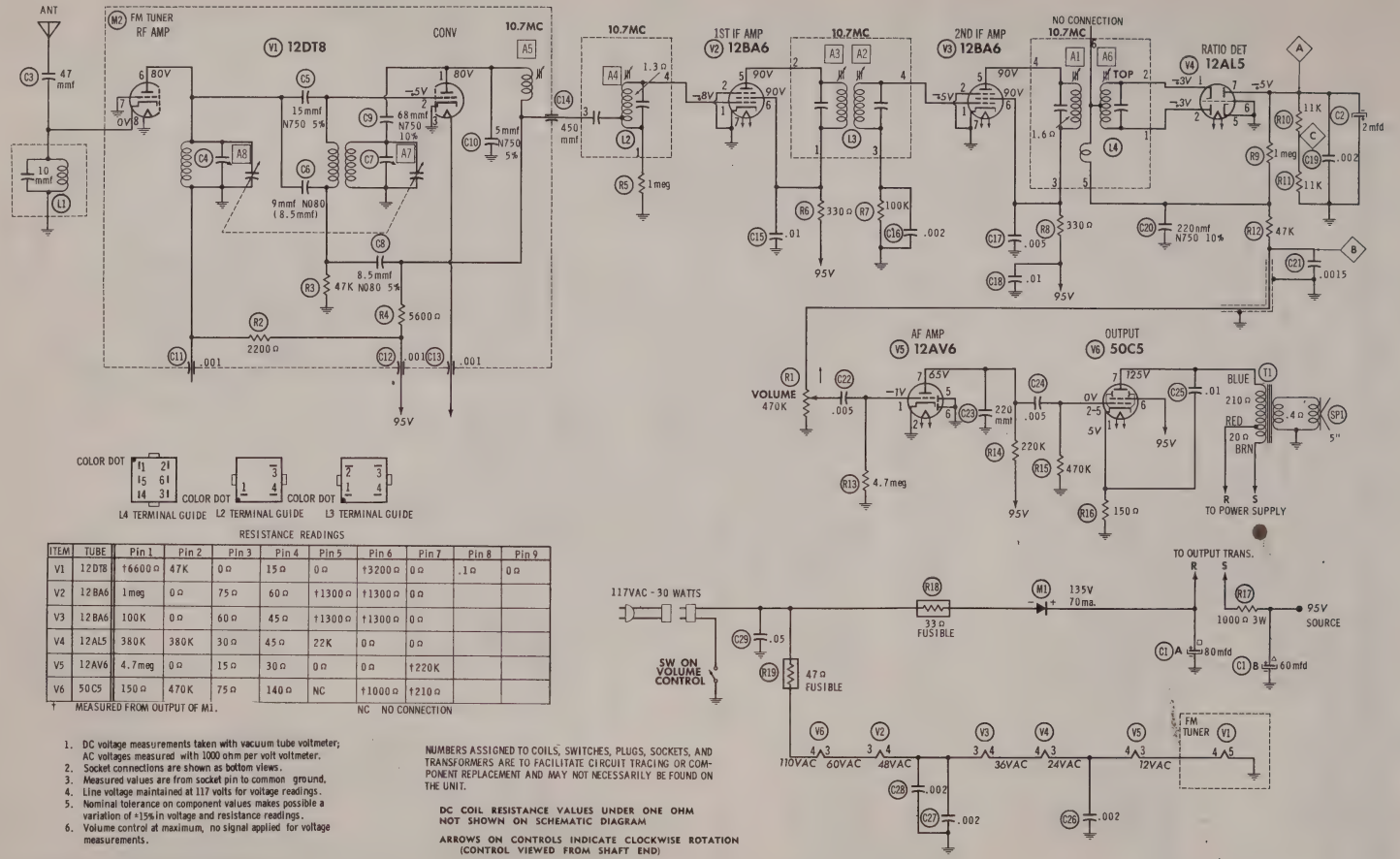
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

FM RF SUBCHASSIS





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†6600Ω	47K	0Ω	15Ω	0Ω	†3200Ω	0Ω	.1Ω	0Ω
V2	12BA6	1meg	0Ω	75Ω	60Ω	†1300Ω	†1300Ω	0Ω		
V3	12BA6	100K	0Ω	60Ω	45Ω	†1300Ω	†1300Ω	0Ω		
V4	12AL5	380K	380K	30Ω	45Ω	22K	0Ω	0Ω		
V5	12AV6	4.7meg	0Ω	15Ω	30Ω	0Ω	0Ω	†220K		
V6	50C5	150Ω	470K	75Ω	140Ω	NC	†1000Ω	†210Ω		

† MEASURED FROM OUTPUT OF M1.

NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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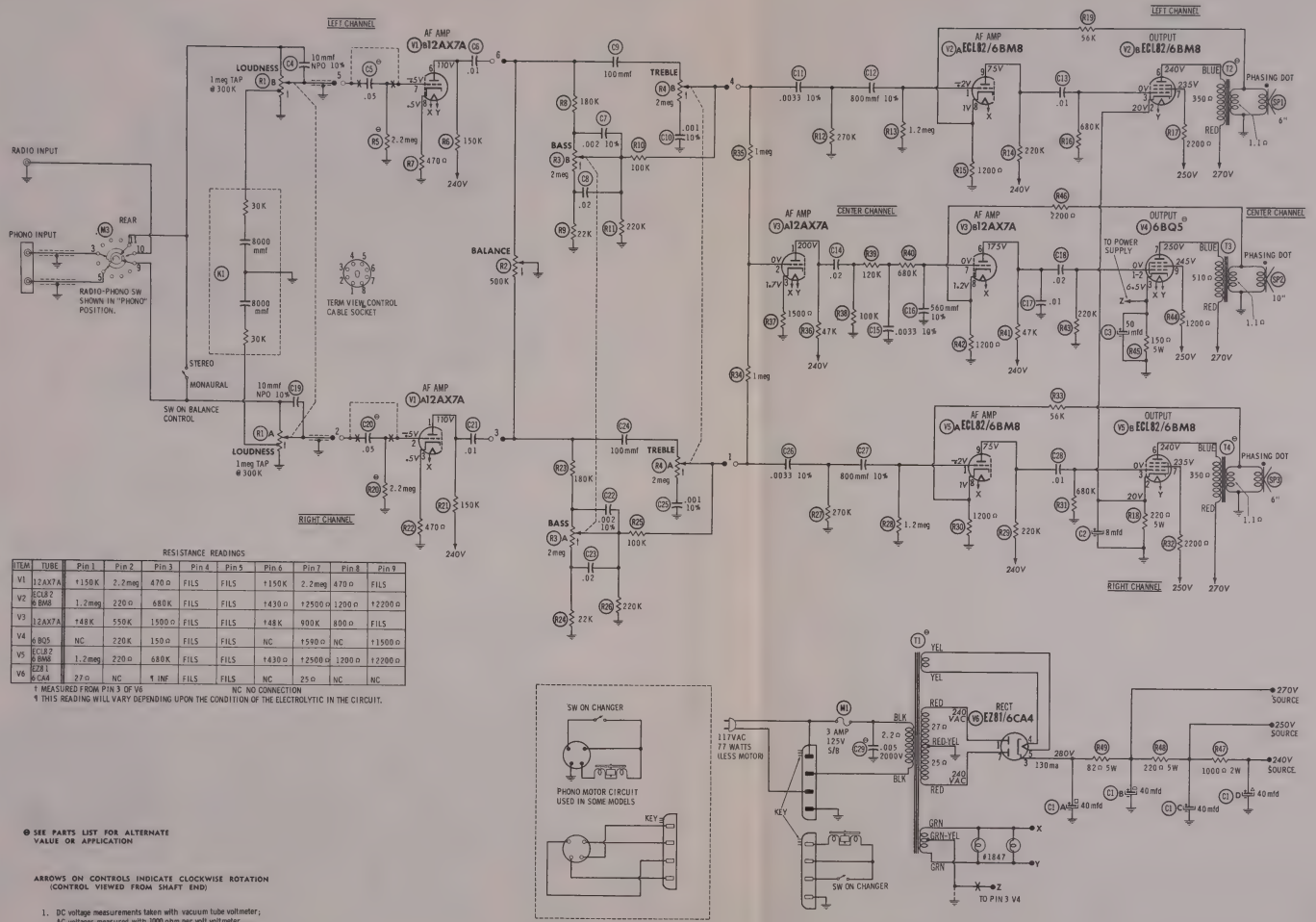
SYLVANIA MODELS 6F17E, T (Ch. 677-1)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†150K	2.2 meg	470 Ω	FILS	FILS	†150K	2.2 meg	470 Ω	FILS
V2	ECL82 or 6BM8	1.2 meg	220 Ω	680K	FILS	FILS	†430 Ω	†2500 Ω	1200 Ω	†2200 Ω
V3	12AX7A	†48K	550K	1500 Ω	FILS	FILS	†48K	900K	800 Ω	FILS
V4	6BQ5	NC	220K	150 Ω	FILS	FILS	NC	†590 Ω	NC	†1500 Ω
V5	ECL82 or 6BM8	1.2 meg	220 Ω	680K	FILS	FILS	†430 Ω	†2500 Ω	1200 Ω	†2200 Ω
V6	EZ81 or 6CA4	27 Ω	NC	¶ INF	FILS	FILS	NC	25 Ω	NC	NC

† MEASURED FROM PIN 3 OF V6 NC NO CONNECTION

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA MODELS SK40B, B-1, M, M-1, W, W-1, SK41CW (Ch. HS-833A, B, C, D)

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7A
V2	Left Channel AF Amp. - Left Channel Output	ECL82/6BM8
V3	Center Channel AF Amp.	12AX7A
V4	Center Channel Output	6BQ5 (EL84) *
V5	Right Channel AF Amp. - Right Channel Output	ECL82/6BM8
V6	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	350	23K642239	AFH4-04-50	D0034	FP420.38	TMQ-4298	TVL-4635.3	
B	▲40	350							
C	40	350							
D	▲40	350							
C2	8	25	23C60119A02	PRS1405	BBR8-150	TT25X8	TD-8-150	TVA-1405	
C3	50	10	23C60119A01	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C5	.05 200V	Note 1	P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C8	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C9	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C11	.0033 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C12	800 10%		DI-820	DD-801	5R5T8	CCD-801	GP382	10TS-T80
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	.0033 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C16	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C19	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C20	.05 200V	Note 1	P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.002 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C23	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C24	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C25	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C26	.0033 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C27	800 10%		DI-820	DD-821	5R5T8	CCD-801	GP382	10TS-T80
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.005 2000V	Note 2		DD30-502	HCV20D5	3CCD-502	2HV-247	BL-D50

Note 1. Not used in Chassis HS-833A.
Note 2. Chassis prior to HS-833D use .05mfd in this application

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	1/2	18K646986				FA16T35	Loudness, Right Channel
B	300K Tap 1meg	1/2					RU16T35	Loudness, Left Channel
C	300K Tap Shaft						CS3500	
R2A	500K	1/2	18K646987		C47-500K-S			Balance
B	Switch				Not Req. *			Push-Pull Stereo-Monaural
R3A	2meg	1/2	18D60116A01	B-76	AD47-2meg-Z		FA26A	Bass, Right Channel
B	2meg			SR-76	Not Req.		FA26A	Bass, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	2meg	1/2	18D60116A01	B-76	AD47-2meg-Z		FA26A	Treble, Right Channel
B	2meg			SR-76	Not Req.		RU26A	Treble, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	

* Use FS-3 Shaft.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	2.2meg			Note 1	R13	1.2meg			
R6	150K				R14	220K			
R7	470Ω				R15	1200Ω			
R8	180K				R16	680K			
R9	22K				R17	2200Ω			
R10	100K				R18	220Ω 5W	PW5-220	5W-SQ-220	
R11	220K				R19	56K			
R12	270K				R20	2.2meg			Note 1

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R21	150K				R36	47K			
R22	470Ω				R37	1500Ω			
R23	180K				R38	100K			
R24	22K				R39	120K			
R25	100K				R40	680K			
R26	220K				R41	47K			
R27	270K				R42	1200Ω			
R28	1.2meg				R43	220K			
R29	220K				R44	1200Ω			
R30	1200Ω				R45	150Ω 5W	PW5-150	5W-SQ-150	
R31	680K				R46	2200Ω			
R32	2200Ω				R47	1000Ω 2W			
R33	56K				R48	220Ω 5W	PW5-220	5W-SQ-220	
R34	1meg				R49	82Ω 5W	PW5-82	5W-SQ-82	
R35	1meg								

Note 1. Not used in Chassis HS-833A.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Loudness Comp.	8000mmf, 8000mmf, 30K, 30K	51K646985	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .75A	480VCT @ .130A	6.3V@ .9A	25C645587-3 ①					① Alt. #25C645587
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @ 2.9A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5400Ω	6-8Ω	25C645449F ①	A-2903	A-3850	24S05	S-51X②	① Alternate Part #25C645449
T3	6000Ω	6-8Ω	25C645446	A-2902 ②	A-3849②	22S88	S-55X	② Drill New Mtg. Hole(s).
T4	5400Ω	6-8Ω	25C645449F ①	A-2903	A-3850	24S05	S-51X②	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"	PM	6-8Ω	50K646994	6A15Z8	
SP2	10"	PM	6-8Ω	50D60179A01	10A10PA	
SP3	6"	PM	6-8Ω	50K646994	6A15Z8	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 125V S/B	65A646112		315003 (3AG 3A 125V)		MDV3	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	MOTOROLA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	59C645700	47K645702*	17D	Not Req.	26SD	2604D* 2605 *	8TA4-SD	N-8TA-SD *	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Switch	40B60152A01	Function Select, Rotary Wafer Type
	Spindle	47B645280	45RPM, Models SK40 Series
	Spindle	47K642167	45RPM, Models SK40-1, SK41 Series

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36D60203A03	Loudness, Bass, Treble
Knob	36D60203A05	Balance
Knob	36D60203A07	Function Selector
Cabinet	16E60219A02	Blond Oak, With Legs, Model SK40B
Cabinet	16E60219A06	Blong Oak, With Legs, Model SK40B-1
Cabinet	16E60240A01	Cherry, With Legs, Model SK41CW
Cabinet	16E60219A01	Mahogany, Model SK40M
Cabinet	16E60219A05	Mahogany, Model SK40M-1
Cabinet	16E60219A04	Walnut, Model SK40W
Cabinet	16E60219A07	Walnut, Model SK40W-1
Leg	16E60219A03	Cabinet, Blond Oak, Models SK40B, SK40B-1
Leg	16B60216A01	Cabinet, Mahogany, Models SK40M, SK40M-1
Leg	16B60216A02	Cabinet, Walnut, Models SK40W, SK40W-1
Leg	16E60240A03	Cabinet, Cherry, Model SK41CW

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE*

**SYMPHONIC
MODEL 1731**

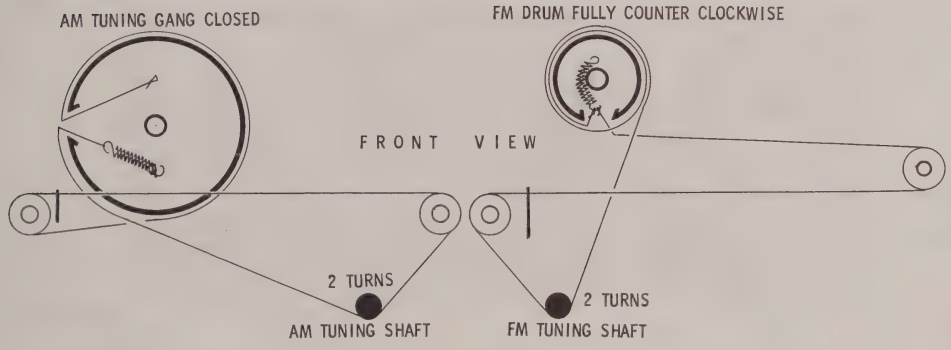
SYMPHONIC
MODEL 1731

SYMPHONIC
MODEL 1731

TRADE NAME	Symphonic Model 1731
MANUFACTURER	Symphonic Radio & Electronics Corp., 235 Jersey Ave., New Brunswick, N. J.
TYPE SET	AC Operated 8 Tube FM-AM Receiver With Stereo Amplifier and 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 61 Watts, .63 Amp. @117 Volts (Less Motor)
TUNING RANGE—BROADCAST	540 — 1600KC FREQ. MOD. 88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M 1571 - PHOTOFACT SET 527 FOLDER 14

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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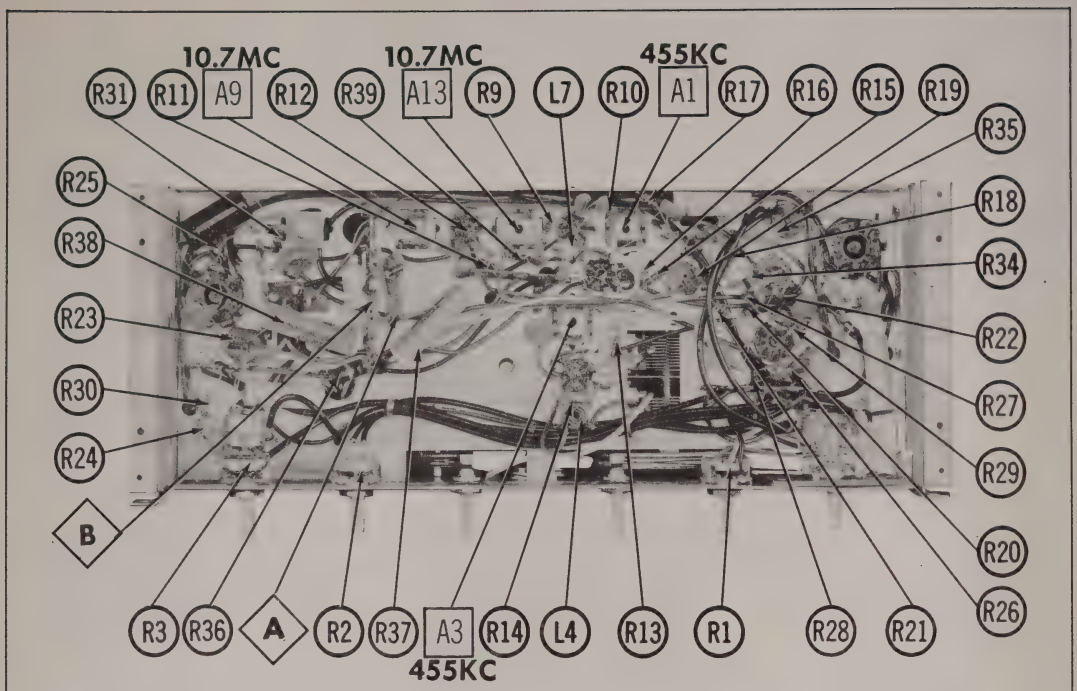
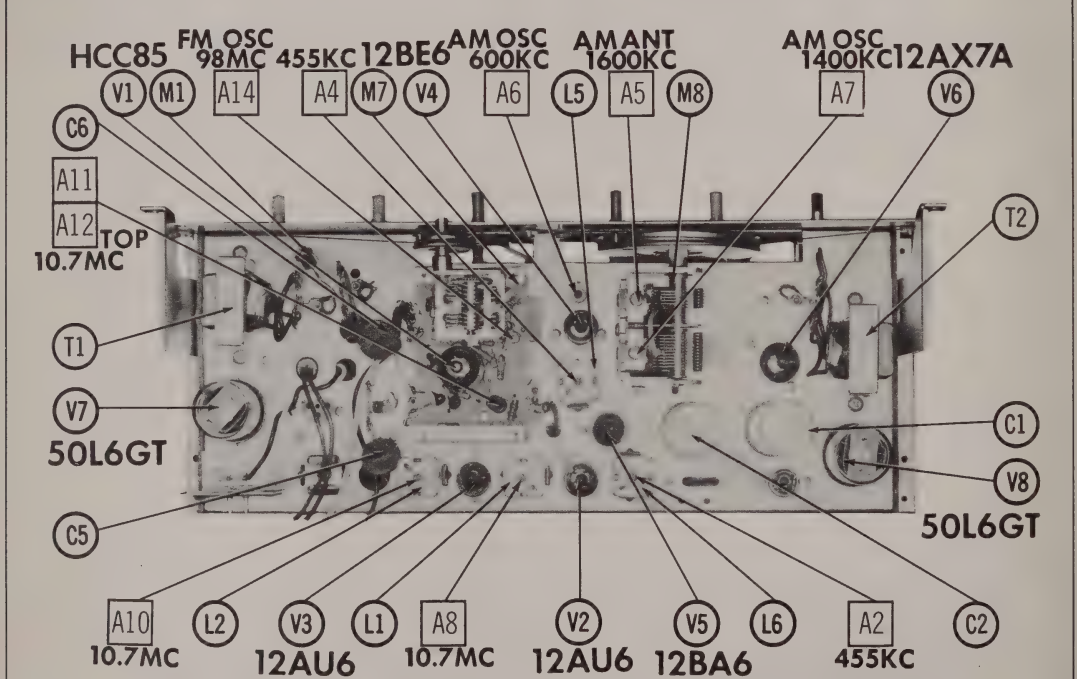
KN839

SET 560 FOLDER 15



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & RESISTOR IDENT.



CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools:

A1 thru A4, A8, A9, A10, A13...GENERAL CEMENT #5097, 8727
WALSCO #2515

A5, A7, A14.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A11, A12.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ 30% AM)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side to AM antenna terminal. Low side to chassis.	1600KC	1600KC	"	A5	"
3.	"	600KC	600KC	"	A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3, and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A8, A9, A10, A11, A12	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C4.
6.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A13	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	98MC (Unmod.)	(FM) 98MC	DC probe to point Ⓐ. Common to chassis.	A14	Adjust for maximum deflection.

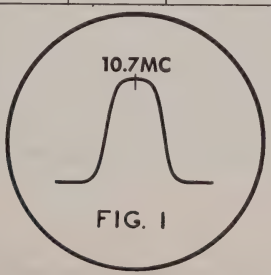


FIG. 1

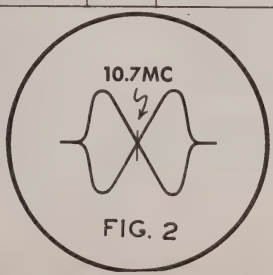
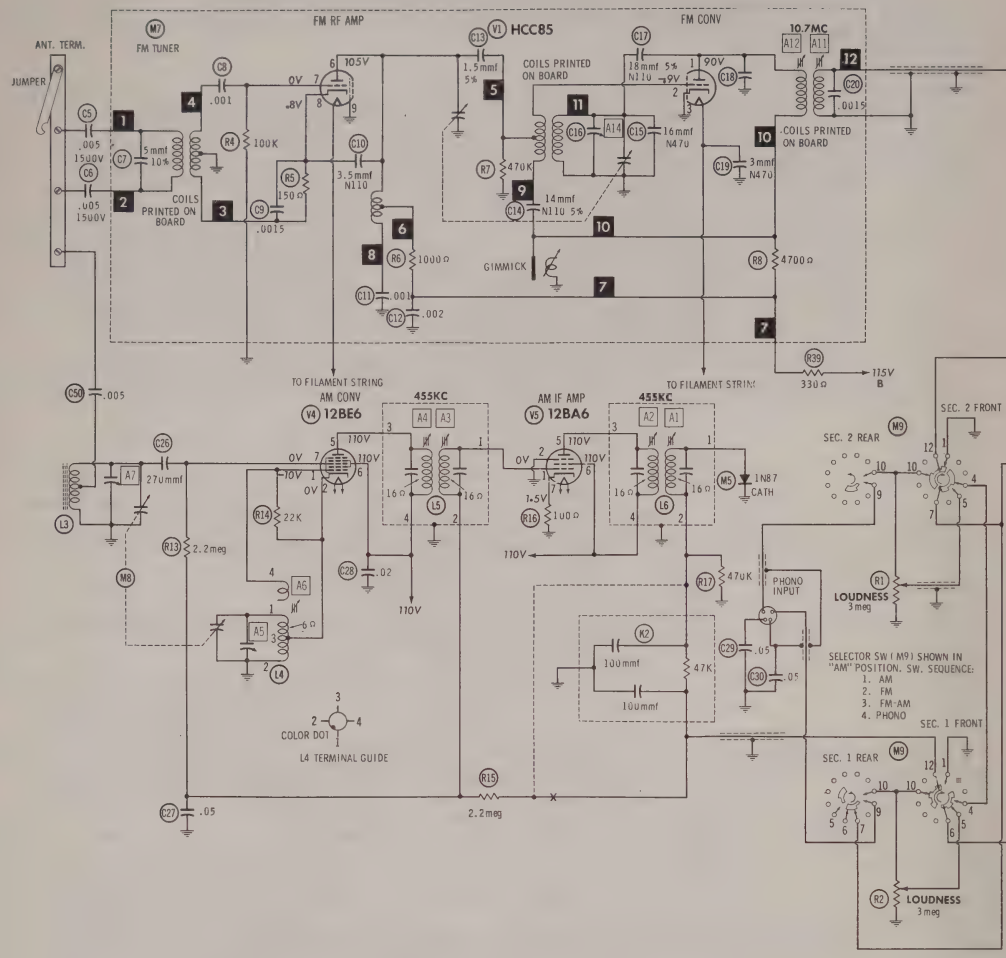


FIG. 2



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	HCC85	†5400Ω	470K	0Ω	20Ω	0Ω	†1700Ω	100K	150Ω	0Ω
V2	12AU6	.1Ω	0Ω	20Ω	30Ω	†680Ω	†680Ω	100Ω		
V3	12AU6	100K	0Ω	30Ω	40Ω	†680Ω	†680Ω	0Ω		
V4	12BE6	22K	.4Ω	30Ω	12Ω	†410Ω	†410Ω	4.7meg		
V5	12BA6	2.5meg	0Ω	30Ω	43Ω	†410Ω	0Ω	†410Ω	100Ω	
V6	12AX7A	†220K	6.8meg	680Ω	12Ω	0Ω	†220K	6.8meg	680Ω	6Ω
V7	50L6GT	TP	40Ω	†297Ω	†1300Ω	¶ 6meg	TP	110Ω	0Ω	
V8	50L6GT	NC	43Ω	†297Ω	†1300Ω	¶ 6meg	NC	115Ω	0Ω	

ALL MEASUREMENTS MADE IN "AM-FM" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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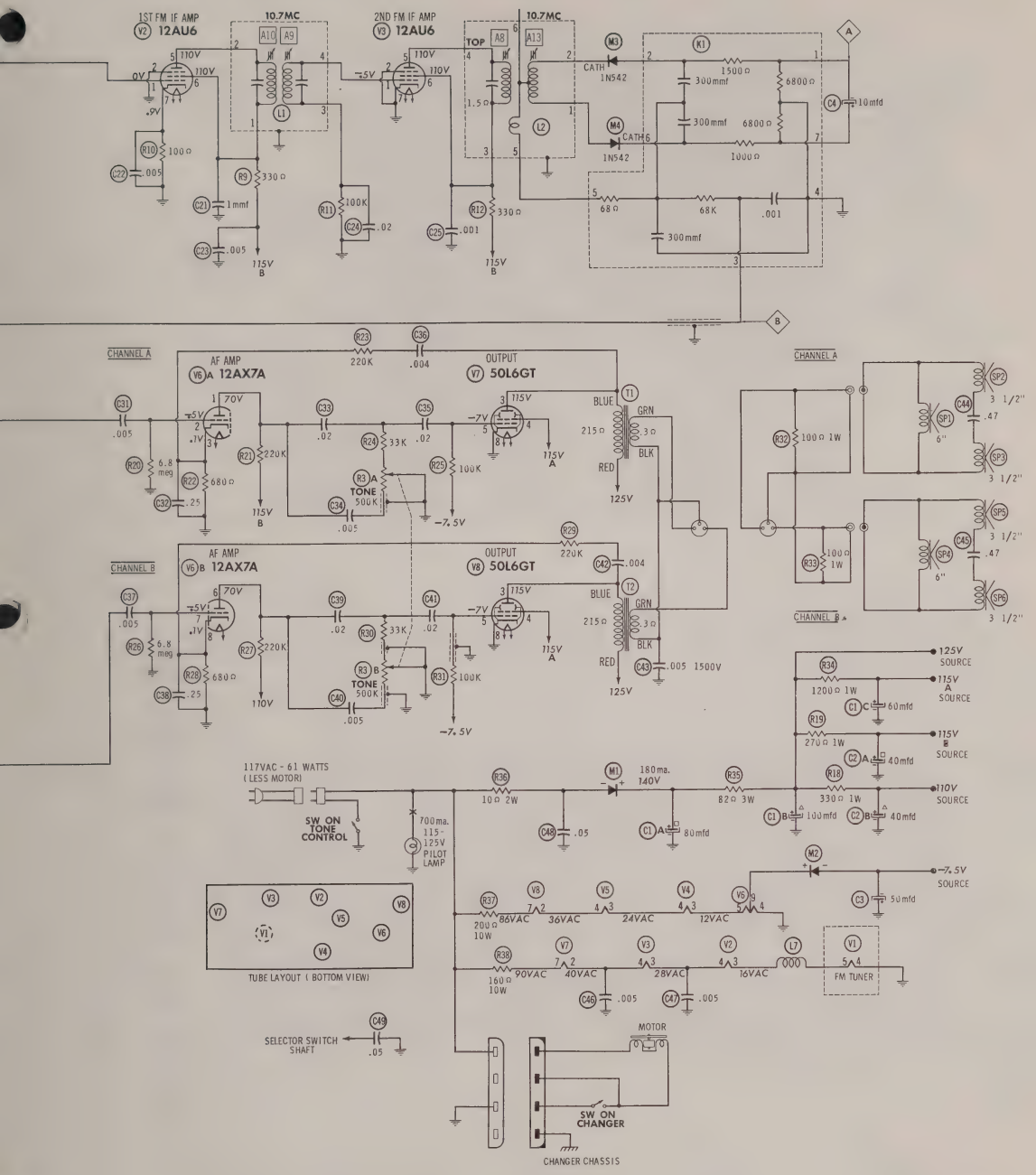
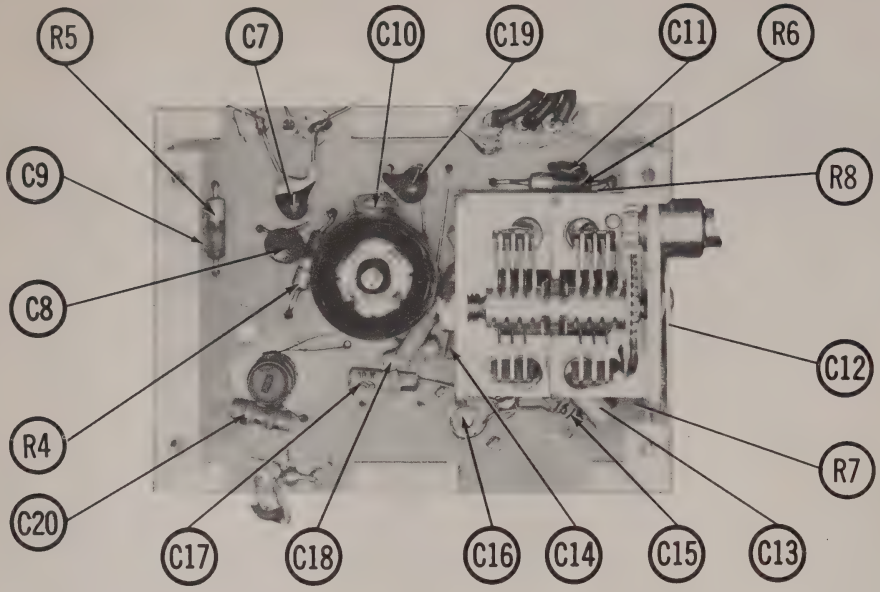


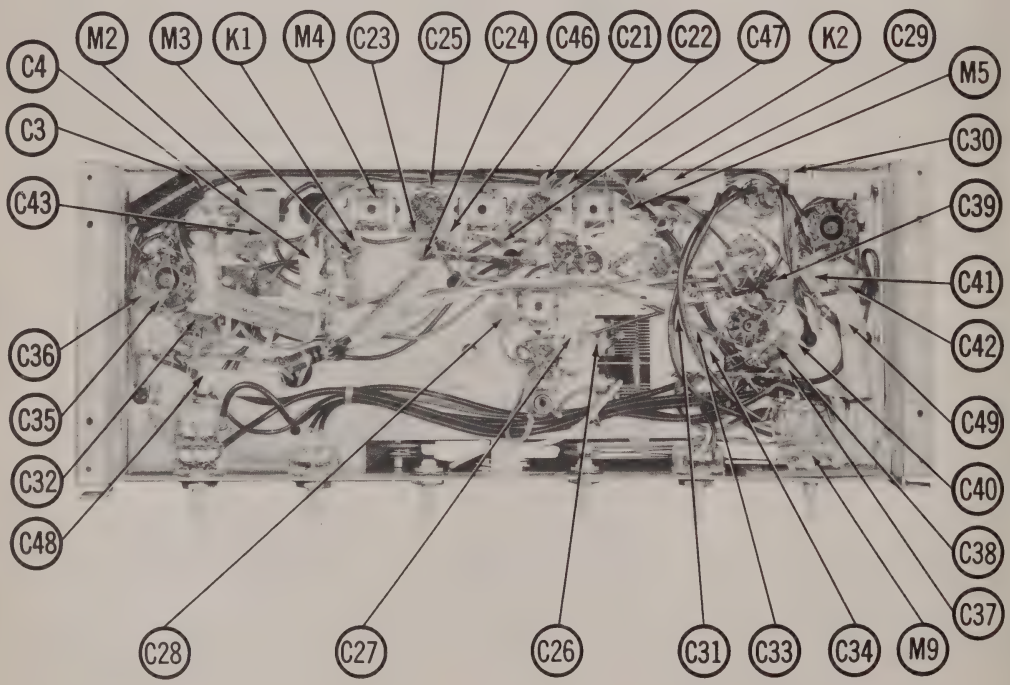
SYMPHONIC MODEL 1731

SYMPHONIC MODEL 1731

FOLDER 15



FM RF SUB CHASSIS-CAPACITOR & RESISTOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp.-FM Conv.	HCC85	V6	Channel A AF Amp.-	12AX7A
V2	1st FM IF Amplifier	12AU6		Channel B AF Amp.	
V3	2nd FM IF Amplifier	12AU6	V7	Channel A Output	50L6GT
V4	AM Converter	12BE6	V8	Channel B Output	50L6GT
V5	AM IF Amplifier	12BA6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SYMPHONIC PART No.	REPLACEMENT DATA AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲80	160	CE-146	PWB3-13-70			PWP315	TMD-2145	TVL-1625
B	▲100	160						TD-100-200	TVA-2535
C	60	160							
C2A	▲40	160	CE-146	AFH2-29	XB0241	XC2-24	FP221	TMD-2350	TVL-2520
B	▲40	160							
C3	50	50		PTT98	NLW50-50	MT1-17	TC39	MLV50-50	TE-1307
C4	10	50		PTT92	NLW10-50	MT1-6	TC32	MLV10-50	TE-1304

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.005 1500V		HVD-15-4700	DD16-502	HVE16D5	3CCD-502	UAC-250	BL-D50
C6	.005 1500V		HVD-15-4700	DD16-502	HVE16D5	3CCD-502	UAC-250	BL-D50
C7	5 5%		NPO-D15	DTZ-4RT	C10V5C	CCTO-050	CNO-547	10TCC-V50
C8	.001		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C9	.0015		BPD-0015	DD-152	BYAI0D15	CCD-152	B-215	5HK-D15
C10	3.5 N1500							
C11	.001		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C12	.002		BPD-002	DD-202	BYAI0D2	CCD-202	B-220	5HK-D20
C13	15 5%		NPO-SI 15	TCZ-15	C15QI5C	CCTO-150	CNO-415	10TCC-Q15
C14	14 N1500 5%					*		
C15	16 N470					*		
C16						*		
C17	18 N1500 5%					*		
C18	3 N470					*		
C19	.0015		BPD-0015	DD-152	BYAI0D15	CCD-152	B-215	5HK-D15
C20	1		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C21	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C22	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C23	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C24	.001		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C25	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C26	270		DI-270	DD-271	L10T27	CCD-271	GP3271	10TS-T27
C27	.05 200V		P288N-05	DD-503	CUB3S5	4DP-3-503	GEM-415	2TM-S50
C28	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-473	GEM-415	4TM-S50
C30	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-473	GEM-415	4TM-S50
C31	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C32	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C33	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C34	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C35	.02		BPD-02	DD-203	BYAI0S3	CCD-203	B-120	5HK-S20
C36	.004		BPD-004	DD-402	BYAI0D4	CCD-402	B-240	5HK-D40
C37	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C38	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C39	.02 .005		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C40			BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C41	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C42	.004		BPD-004	DD-402	BYAI0D4	CCD-402	B-240	5HK-D40
C43	.005 1500V		HVD-15-4700	DD16-502	HVE16D5	3CCD-502	UAC-250	BL-D50
C44	.47 200V		P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C45	.47 200V		P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C46	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C47	.005		BPD-005	DD-502	BYAI0D5	CCD-502	B-250	5HK-D50
C48	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C49	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C50	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYMPHONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	3meg	1/2	VC-335	B-85	A47-3meg-Z	Q13-140	U57	Loudness, Channel A
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	3meg	1/2	VC-335	B-85	A47-3meg-Z	Q13-140	U57	Loudness, Channel B
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	1/2	VC-336	B-60	AD47-500K-Z		FA55A	Tone, Channel A
B	500K			SR-60	Not Req.		RU55A	Tone, Channel B
C	Shaft			Not Req.	FS-3		CS3500	
D	Switch			KR-1	SWE-12		US41	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100K				R22	680Ω			
R5	150Ω				R23	220K			
R6	1000Ω				R24	33K			
R7	470K				R25	100K			
R8	4700Ω				R26	6.8meg			
R9	330Ω				R27	220K			
R10	100Ω				R28	680Ω			
R11	100K				R29	220K			
R12	330Ω				R30	33K			
R13	2.2meg				R31	100K			
R14	22K				R32	100Ω 1W			
R15	2.2meg				R33	100Ω 1W			
R16	100Ω				R34	1200Ω 1W			
R17	470K				R35	82Ω 3W	PW3-82	3W-SQ-82	
R18	330Ω 1W				R36	10Ω 2W			
R19	270Ω 1W				R37	200Ω 10W	PW10-200	10W-SQ-200	
R20	6.8meg				R38	160Ω 10W	PW10-160	10W-SQ-200	
R21	220K				R39	330Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SYMPHONIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	2nd FM IF		FM-254	1463	RTC-8599	T633	① IRC Part #CLA
L2	Ratio Detector		FM-255	1465	RTC-8600	T635	
L3	Loopstick		BC-419	705-A		T532	
L4	AM Osc.		BC-393	69-OSC	RTC-8646	T504	
L5	1st AM IF		BC-352	12-C1	RTC-8632	T607	
L6	2nd AM IF		BC-353	12-C2	RTC-8633	T608	
L7	Fil. Choke(1 uh)	①	BC-561	4602	RTC-8515	T855	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	TR-197	A-2928	A-3876	24S50	S-1X	
T2	2500Ω	3-4Ω	TR-197	A-2928	A-3876	24S50	S-1X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYMPHONIC PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	SP-600	6A31	
SP2	3½"	PM	3-4Ω	SP-420	3A15TZ3.2	
SP3	3½"	PM	3-4Ω	SP-420	3A15TZ3.2	
SP4	6"	PM	3-4Ω	SP-600	6A31	
SP5	3½"	PM	3-4Ω	SP-420	3A15TZ3.2	
SP6	3½"	PM	3-4Ω	SP-420	3A15TZ3.2	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYMPHONIC PART No.	REPLACEMENT DATA
K1	Ratio Det. Network	(3) 300mmf, .001mfd, 68Ω, 1000Ω, 1500Ω, (2) 6800Ω, 68K		Aerovox PA-694 Centralab PC-342 Sprague C-12
K2	AM Diode RF Filter	100mmf, 100mmf, 47K		Aerovox PA-97 Centralab PC-50 Sprague D-1

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	SYMPHONIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.180A	†	1N1763 †	F4 †	† Silicon ‡ Selenium
M2	.005A	‡		65 ‡	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SYMPHONIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M3	1N542			1N295	Ratio Detector (Matched Pair)
M4	1N542			1N295	
M5	1N87			1N87	AM Detector

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	SYMPHONIC PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M6			80TS-TB	N8-7* N8-3*	96T	Not Req.	12TLA-S	N12TLA-S*	

MISCELLANEOUS

ITEM No.	PART NAME	SYMPHONIC PART No.	NOTES
M7	FM Tuner		FM
M8	Tuning Cap.		AM, 2 Gang (Ant. 21-484mmf, Osc. 8-160mmf)
M9	Switch		Function Selector (Rotary Wafer Type)

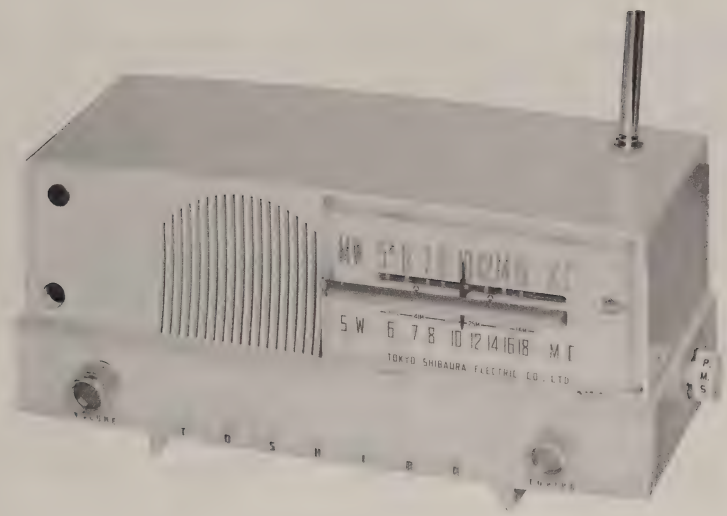
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

PHOTOFACT® Folder

**TOSHIBA MODEL
5LR-287**

TOSHIBA MODEL
5LR-287



TOSHIBA MODEL
5LR-287

TRADE NAME	Toshiba Model 5LR-287
IMPORTER	Transistor World Corp., 52 Broadway, New York 4, N. Y.
TYPE SET	AC-DC Operated 5 Tube BC-SW Receiver
POWER SUPPLY	110 — 120 Volts AC-DC RATING 27 Watts, .26 Amp. 117 Volts AC
TUNING RANGE—BROADCAST	540 — 1600KC SHORT WAVE 6-18MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4.... GENERAL CEMENT #9440
A5 thru A8.... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400% Mod.)	(MW) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	18MC	(SW) 18MC	"	A5, A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1600KC	(MW) 1600MC	"	A7, A8	"

SET 560 FOLDER 16

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG747

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Converter	12BE6
V2	IF Amplifier	12BA6
V3	Det. -AVC-AF Amp.	12AV6
V4	Output	50C5
V5	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	A60	150		AFH2-16	XB0161	FP214	TMO-2120	TVL-2435	
B	B40	150							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2A								
B								
C								
D								
C3	200		1468-0002	TCZ-200	5W5T2	CM-19B-201M	MC237	1FM-32
C4	.001 400V		P488N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D10
C5	.05 400V		P488N-05	DD-503	CUB4S1	4DP-3-503	GEM-415	4TM-S50
C6	100		1468-0001	TCZ-100	5W5T1	CM-19B-101M	MC235	1FM-31
C7	365 5%		1469-00036		5T5T36	CM-19B-360J		MS-336
C8	450 2.5%							
C9	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C10	200		1468-0002	TCZ-200	5W5T2	CM-19B-201M	MC237	1FM-32
C11	.01 150V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C12	200		1468-0002	TCZ-200	5W5T13	CM-19B-201M	MC237	1FM-32
C13	.005 150V		P288N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50
C14	200		1468-0002	TCZ-200	5W5T2	CM-19B-201M	MC237	1FM-32
C15	.02 150V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	4TM-S20
C16	.01 150V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C17	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C18	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

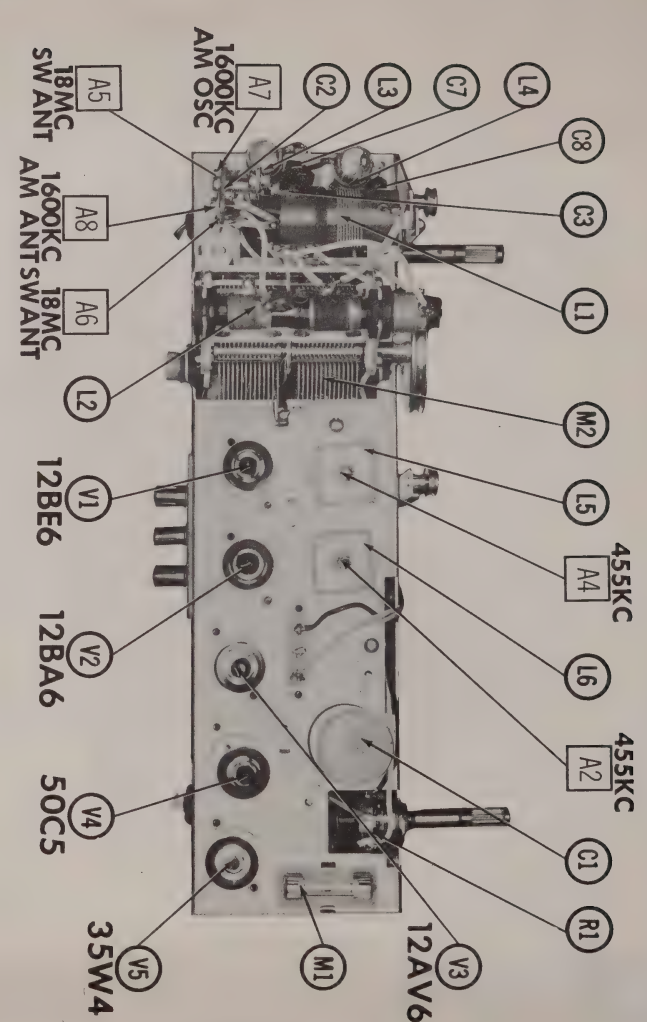
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		AB-60				Volume
B	Shaft			AK-29				
C	Switch			KR-3				Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	68Ω			
R3	22K			
R4	220Ω			
R5	47K			
R6	2.2meg			
R7	4.7meg			
R8	330K			
R9	470K			
R10	120Ω 1W			
R11	1000Ω 2W			
R12	22Ω			
R13	150Ω			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TOSHIBA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1 L2 L3 L4 L5 L6	SW Ant. Loopstick SW Osc. BC Osc. Input IF Output IF		 BC-356 BC-357	 13-PC1 13-PC2	 RTC-8641 RTC-8642	 T646 T647	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3300Ω	3-4Ω		A-2928	A-3876	24S50	S-30X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SP-4002B	4A07	

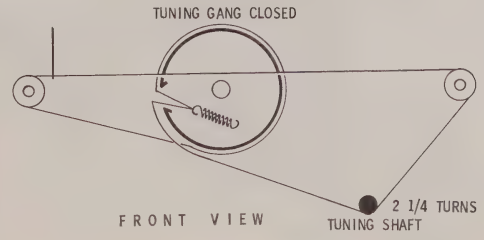
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TOSHIBA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	8AG	1A 250V			362001 (8AG 1A 250V	387001	AGX 1	4520

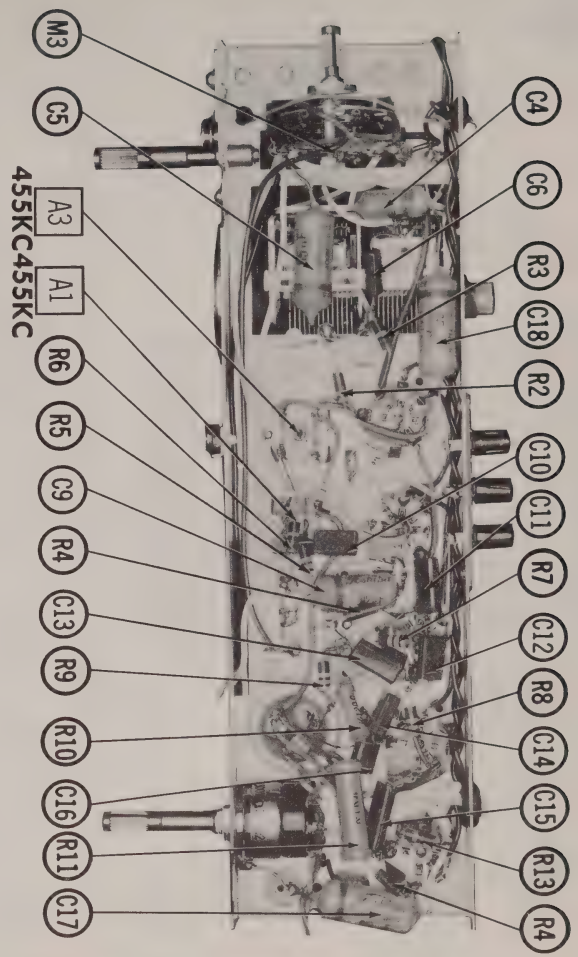
MISCELLANEOUS

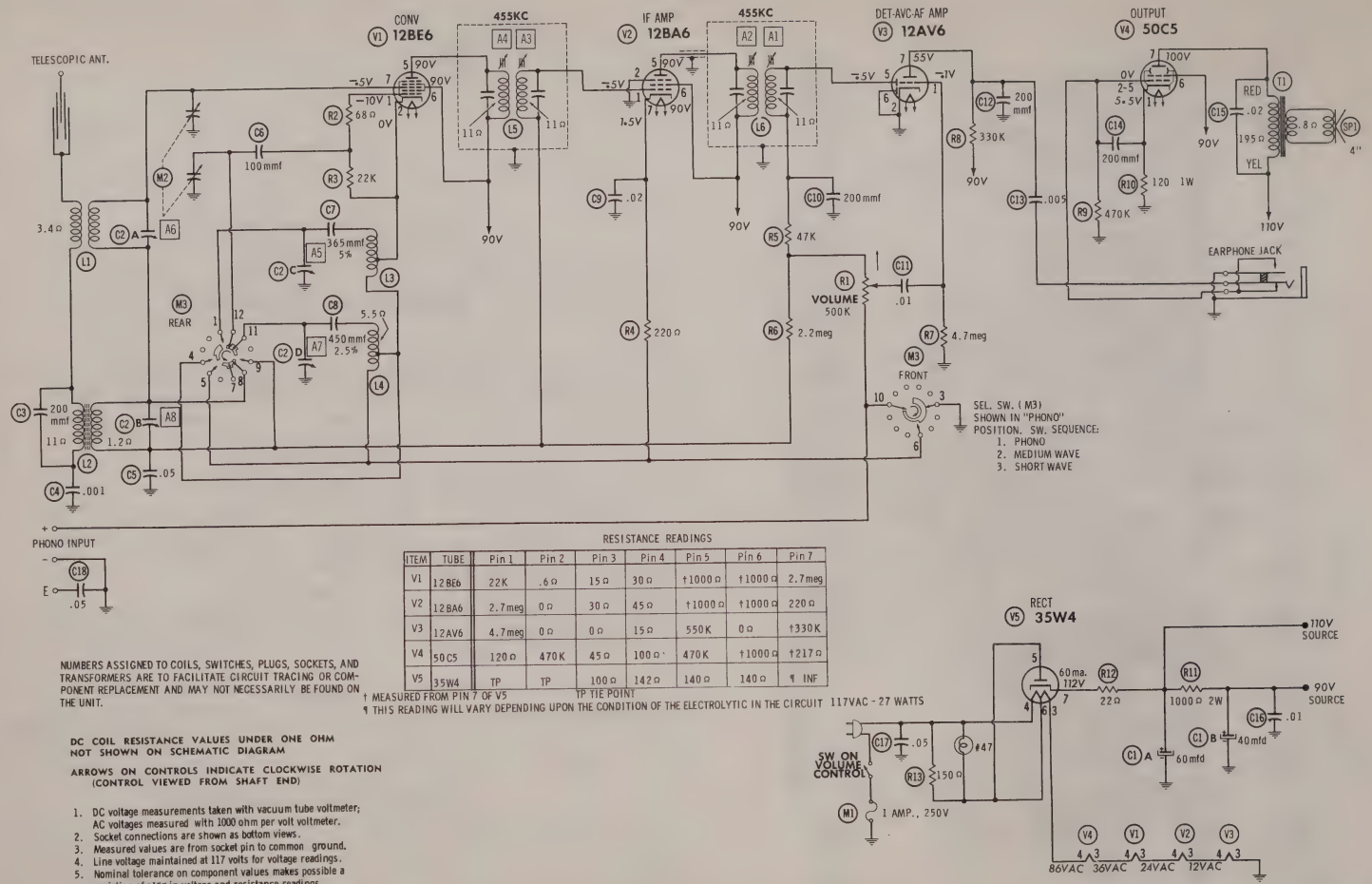
ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M2	Tuning Cap.		2 Gang
M3	Switch		Function Selector (Rotary Wafer Type)

DIAL CORD STRINGING



CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.6Ω	15Ω	30Ω	†1000Ω	†1000Ω	2.7meg
V2	12BA6	2.7meg	0Ω	30Ω	45Ω	†1000Ω	†1000Ω	220Ω
V3	12AV6	4.7meg	0Ω	0Ω	15Ω	550K	0Ω	†330K
V4	50C5	120Ω	470K	45Ω	100Ω	470K	†1000Ω	†217Ω
V5	35W4	TP	TP	100Ω	142Ω	140Ω	140Ω	¶ INF

† MEASURED FROM PIN 7 OF V5 TP TIE POINT

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT 117VAC - 27 WATTS

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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TOSHIBA MODEL 5LR-287

PHOTOFACT® Folder

WESTINGHOUSE MODELS H-68ACS1, H-68ACS2, H-69ACS1 (Ch. V-2507-6, -7)

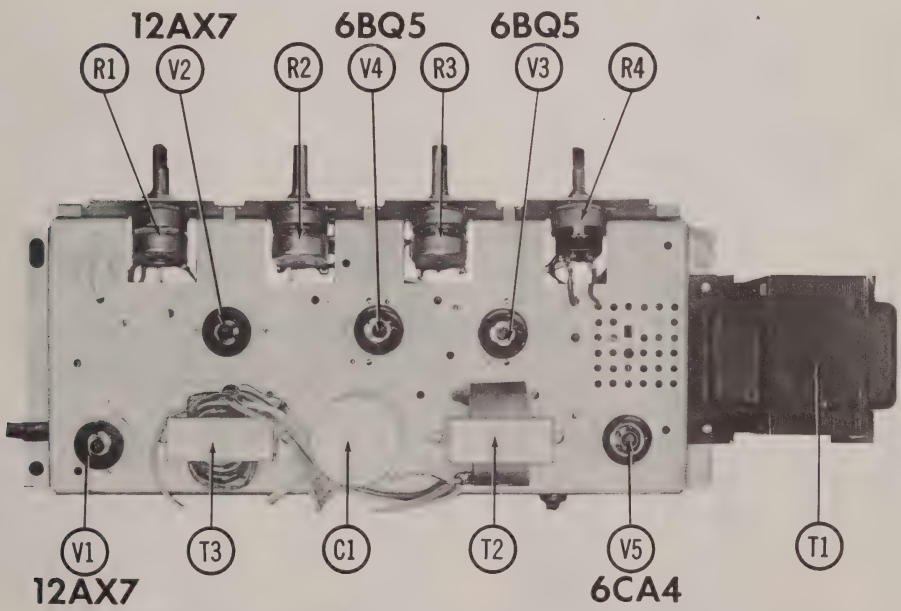
WESTINGHOUSE MODELS H-68ACS1, H-68ACS2, H-69ACS1 (Ch. V-2507-6, -7)

MODEL H-68ACS1

WESTINGHOUSE MODELS H-68ACS1, H-68ACS2, H-69ACS1 (Ch. V-2507-6, -7)

TRADE NAME	Westinghouse Models H-68ACS1, H-68ACS2 (Ch. V-2507-6); H-69ACS1 (Ch. V-2507-7)
MANUFACTURER	Westinghouse Electric Corp., Radio-Television Div., Metuchen, N. J.
TYPE SET	AC Operated 5 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105 – 120 Volts AC, 60 Cycles RATING 55 Watts, .54 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #670V010H07 – SEE V-M1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-10



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT 848

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SET 560 FOLDER 17

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7 (7025) *
V2	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7 (7025) *
V3	Channel 1 Output	6BQ5
V4	Channel 2 Output	6BQ5
V5	Rectifier	6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	218V037H06	AFH4-18-40	D0176	FP428.4	TMQ-4649	TVL-4774	
B	■40	350							
C	▲30	350							
D	30	350							
C2	10	25	218V025H33	PRS1250	BBR10-25	TC22	TD-10-25	TVA-1204	
C3	50	25	218V025H32	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	
C4	70	25NP	218V025H41 ①	PRS7340	BR8015	TCN425		TVANS-1207.1*	
C5	70	25NP	218V025H41 ①	PRS7340	BR8015	TCN425		TVANS-1207.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Chassis V-2507-7 use Part #218V025H50.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.01 600V		P688N-1	D6-103	CUB6S1	6DP-3-103	GEM-611	6TM-S10
C7	.01 600V		P688N-1	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C8	.01 600V		P688N-1	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C9	.01 600V		P688N-1	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	270V109H02	B-76	AD47-2meg-Z		FB26A	Loudness, Left Channel
B	2meg	½	①	SR-76	Not Req.		RU26A	Loudness, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R2A	1meg	½	270V088H05	B-69	AD47-1meg-S		FBI6L	Treble, Left Channel
B	1meg	½	②	SR-69	Not Req.		RUI6L	Treble, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R3A	1meg	½	270V088H05	B-69	AD47-1meg-S		FBI6L	Bass, Left Channel
B	1meg	½	②	SR-69	Not Req.		RUI6L	Bass, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	500K	½	270V088H03	BPL-59	C47S-500K-S	Bil-133 *	PP55L	Balance
B	Switch		③	Not Req.	Not Req.	SK7 *	Not Req.	Push-Pull Stereo-Monaural
C	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

① Part #270V109H01 used in Chassis V-2507-7.
② Part #270V108H02 used in Chassis V-2507-7.
③ Part #270V108H01 used in Chassis V-2507-7.
* Factory assembled Part #PPQ11-133 (SK7).

CHASSIS—BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	820K			
R6	220K			
R7	1000Ω			
R8	100K			
R9	150K			
R10	6800Ω			
R11	33K			
R12	10K			
R13	100Ω 2W			
R14	100Ω			Note 1
R15	820K			
R16	220K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R17	100K			
R18	150K			
R19	6800Ω			
R20	33K			
R21	10K			
R22	100Ω			Note 1
R23	12K			
R24	2200Ω 1W			
R25	230Ω 4W	PW5-230	5W-SQ-230	
R26	47Ω 3W	PW3-47	3W-SQ-47	
R27	150K			

Note 1. Not used in Chassis V-2507-7.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Tone Comp.	100mmf, (2) .0022mfd, .01mfd, 22K, 150K	219V039H01	
K2	Tone Comp.	100mmf, (2) .0022mfd, .01mfd, 22K, 150K	219V039H01	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Tone Choke(2.5MH)	230V095H03					
L2	Tone Choke(2.5MH)	230V095H03					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .54A	490VCT @.080A DC	6.3V@ 3A	410V033H01 ①		PC8420②			① Part #410V033H02 used in Ch. V-2507-7 ② Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	9000Ω CT	6-8Ω CT	430V091H01 ①			24S09		① #430V109H01 used in Chassis V-2507-7
T3	6700Ω	6-8Ω	430V092H01					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	
SP1	6"	PM	6-8Ω	570V068H03	6A3IZ6.4	* Used only in Models H-68ACS1, H-68ACS2
SP2	5"	PM	6-8Ω	570V094H01 *	5A15RZ6.4	
SP3	6"	PM	6-8Ω	570V068H03	6A3IZ6.4	† Used only in Model H-69ACS1
SP4	5"	PM	6-8Ω	570V094H01 *	5A15RZ6.4	
	4"	PM	6-8Ω	570V071H01 †	4A1Z6.4	
	8"	PM	10-12Ω	570V098H01 †		

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	Westinghouse PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	671V009H01	690V023H05*	17D	Not Req.	26SD	2604D * & 2605	8TA4-SD	N-8TA-SD *	

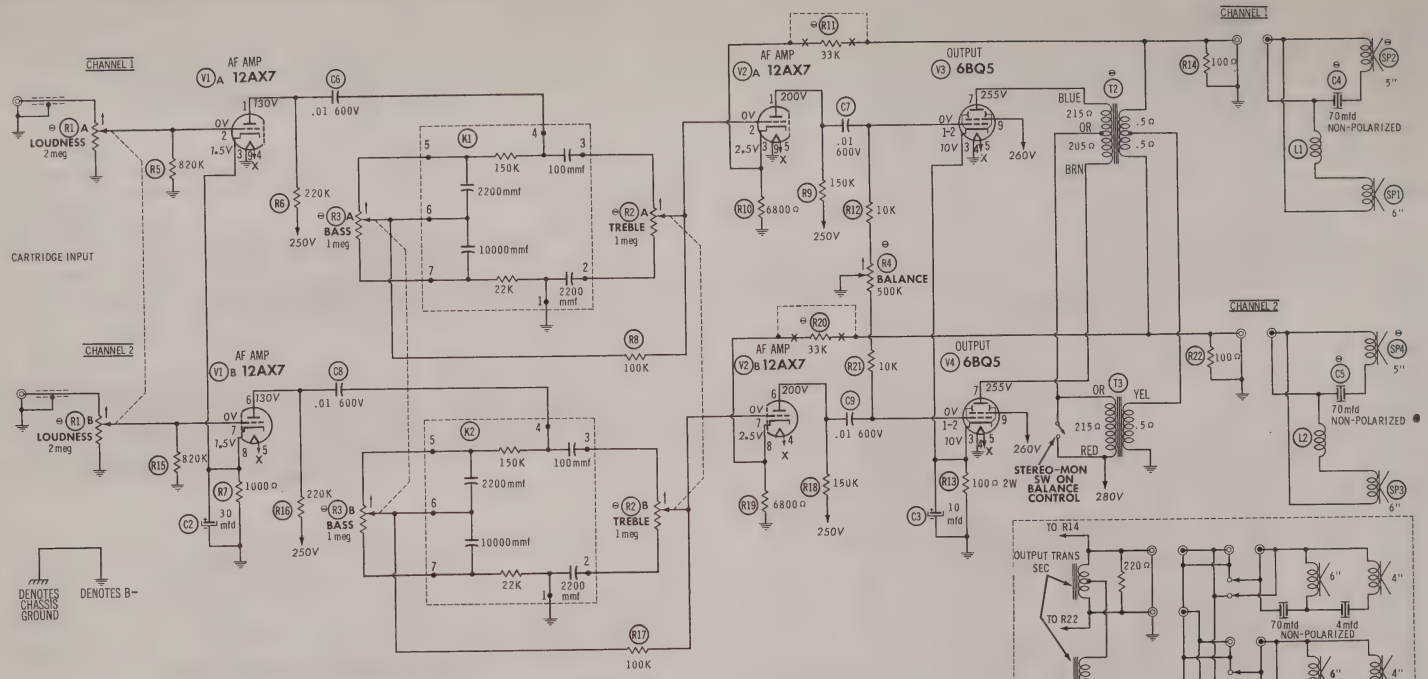
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	550V118H01	Models H-68ACS1, H-68ACS2
Knob	559V070H01	(Bottom) Balance, Model H-69ACS1
Knob	550V114H02	(Top) Balance, Loudness, Bass, Treble, Model H-69ACS1
Knob	559V071H01	(Bottom) Loudness, Bass, Treble, Model H-69ACS1
Speaker Cabinet	516V262H01	Model H-69ACS1
Cabinet	516V261H04	Model H-69ACS1
Cabinet	516V257H01	Model H-68ACS1
Cabinet	516V257H02	Model H-68ACS2

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†235K	0Ω	1000Ω	FIL	FIL	†235K	0Ω	1000Ω	FIL
V2	12AX7	†165K	130K	6500Ω	FIL	FIL	†165K	130K	6500Ω	FIL
V3	6BQ5	NC	260K	100Ω	FIL	FIL	NC	†660Ω	NC	†2400Ω
V4	6BQ5	NC	260K	100Ω	FIL	FIL	NC	†650Ω	NC	†2400Ω
V5	6CA4	104Ω	NC	¶ INF	FIL	FIL	NC	100Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V5.

NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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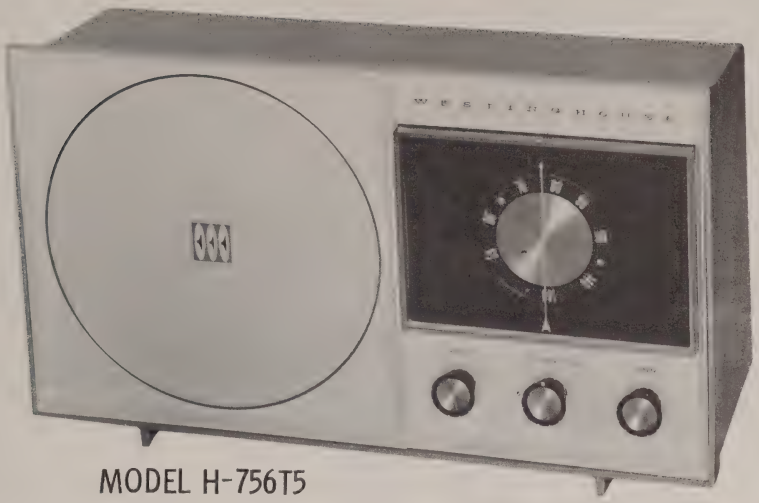
WESTINGHOUSE MODELS H-68ACS1, H-68ACS2, H-69ACS1 (Ch. V-2507-6, -7)

PHOTOFACT® Folder with CIRCUITRACE®

WESTINGHOUSE MODELS H-756T5, H-757T5 (Ch. V-2410-1)

WESTINGHOUSE MODELS
H-756T5, H-757T5 (Ch. V-2410-1)



MODEL H-756T5

WESTINGHOUSE MODELS
H-756T5, H-757T5 (Ch. V-2410-1)

TRADE NAME	Westinghouse Models H-756T5, H-757T5 (Ch. V-2410-1)
MANUFACTURER	Westinghouse Electric Corp., Radio-TV Division, Metuchen, N. J.
TYPE SET	AC-DC Operated 5 Tube AM Receiver
POWER SUPPLY	105 — 120 Volts AC-DC
TUNING RANGE—BROADCAST	540 — 1600KC RATING 26 Watts, .25 Amp. @117 Volts AC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2.....GENERAL CEMENT #5097, 8727
WALSCO #2515
A3, A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .02mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1625KC	"	"	A5	"
3.	"	1400KC	1400KC	"	A6	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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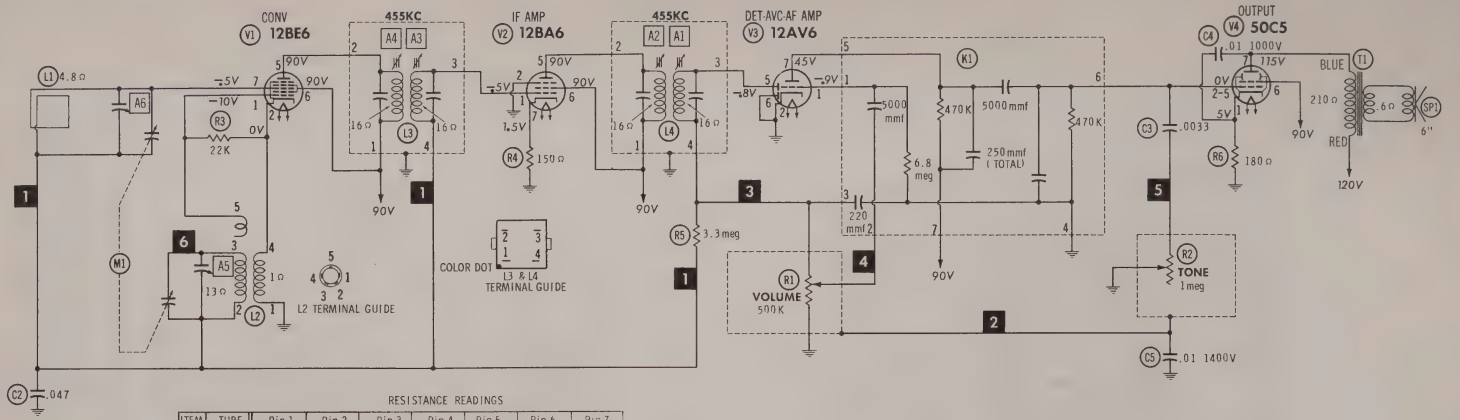
KG815

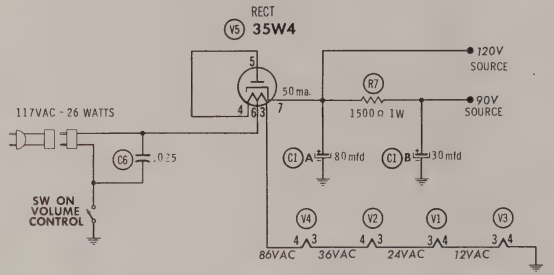
SET 560 FOLDER 18



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	30Ω	15Ω	†1500Ω	†1500Ω	3.8meg
V2	12BA6	3.8meg	0Ω	30Ω	45Ω	†1500Ω	†1500Ω	150Ω
V3	12AV6	6.8meg	0Ω	15Ω	0Ω	500K	0Ω	†470K
V4	50C5	180Ω	470K	45Ω	110Ω	470K	†1500Ω	†210Ω
V5	35W4	NC	NC	110Ω	155Ω	155Ω	150Ω	¶ INF

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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WESTINGHOUSE MODELS
H-756T5, H-757T5 (Ch. V-2410-1)

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ITEM No.	USE	TYPE
V1	Converter	12BE6
V2	IF Amplifier	12BA6
V3	Det.-AVC-AF Amp.	12AV6
V4	Output	50C5
V5	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	218V025H52	PWH2-17-50	B0180 †	PWP214.4	TMD-2135 ♦	PCL-2441	
B	30	150							

† Use Printed Circuit Adapters #55277 & 55278.
♦ Use Printed Circuit Adapter Kit TMA.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C3	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C4	.01 1000V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.01 1400V		DAC-27	DD16-103	AVE16S1	16DP-3-103	UAC-110	BL-S10
C6	.025				DPMS6S25	4DP-2-253	GEM-4125	5HK-S25

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K		270V027H18					Volume
R2A	1meg		270V027H19					Tone
B	Switch							Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA WORKMAN TV PART No.	REMARKS
R3	22K			
R4	150Ω			
R5	3.3meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA WORKMAN TV PART No.	REMARKS
R6	180Ω			
R7	1500Ω 1W			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, 005mfd, .005mfd, 470K, 470K, 6.8meg	219V001H01	Aerovox PA-512-3 Centralab PC-158 Mallory MS-107 Sprague DT-5

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Loop Ant.	310V067H01					
L2	Osc.	230V004H04					
L3	Input IF	235V023H11	BC-356	13-PC1	RTC-8641	T614	
L4	Output IF	235V023H11	BC-357	13-PC2	RTC-8642	T615	

PRINTED BOARD

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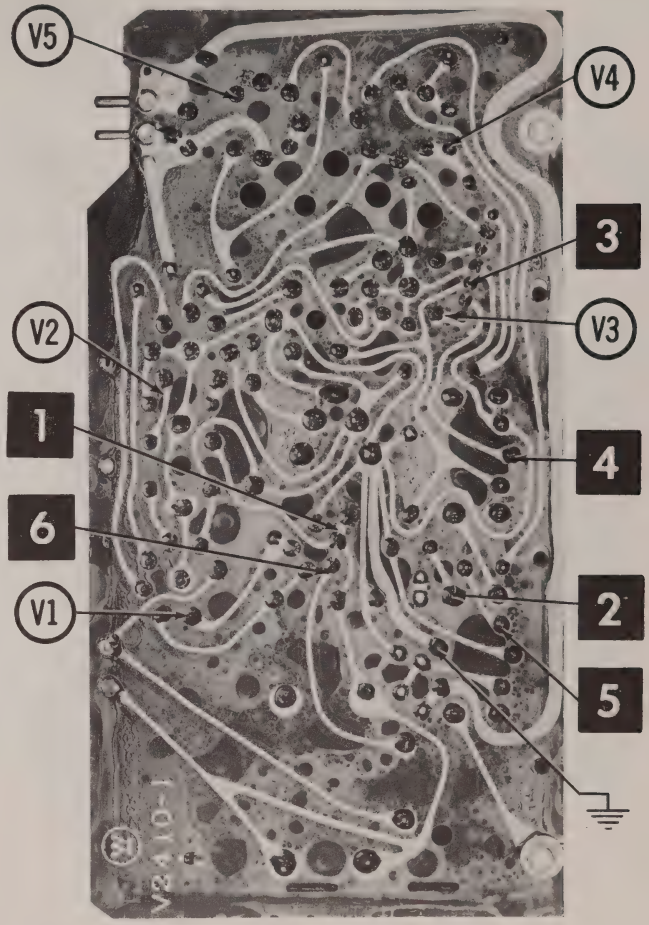
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2100Ω	3-4Ω	787V245H01 ①	A-3025	A-3332	24S53	S-20X	① Includes Speaker

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	570V089H01 787V245H01*	6A1	* Includes Output Transformer

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M1	Tuning Cap.	330V039H01	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

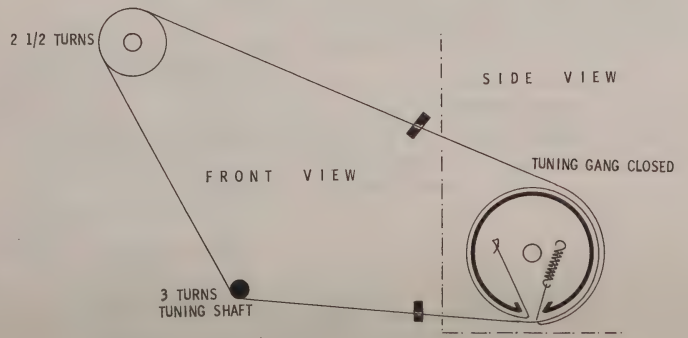
NAME	PART NO.	DESCRIPTION
Dial Crystal	558V341H01	
Knob	550V162H01	Tuning, Volume
Knob	550V162H04	Tone
Cabinet Back	513V081H05	Model H-756T5
Cabinet Back	513V081H06	Model H-757T5
Cabinet Front	513V082H03	

WIRING DATA

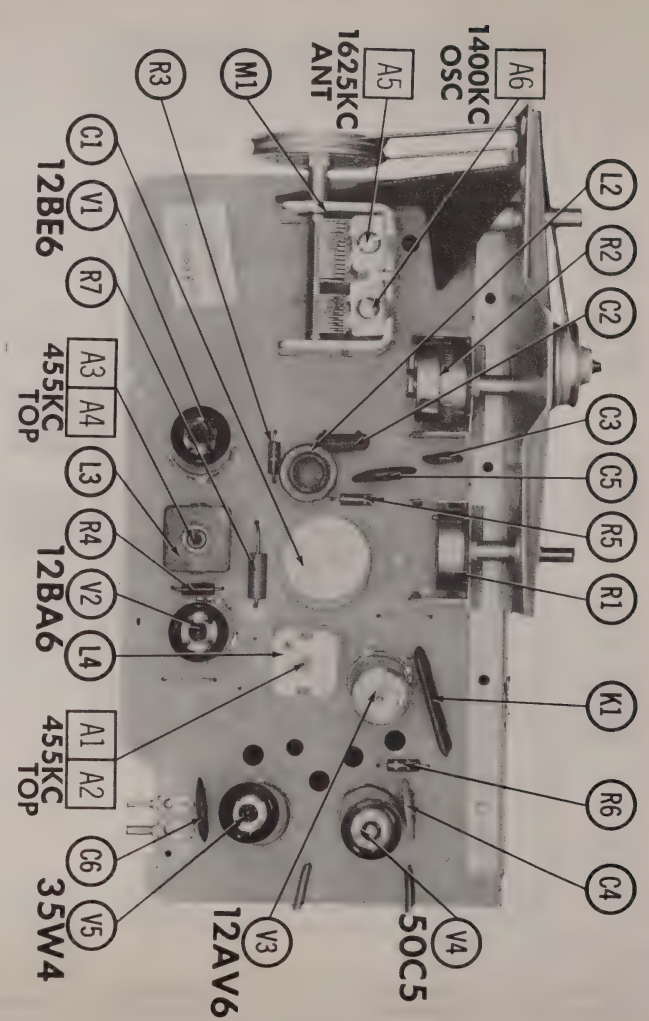
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

DRIVE CORD STRINGING



CHASSIS—TOP VIEW



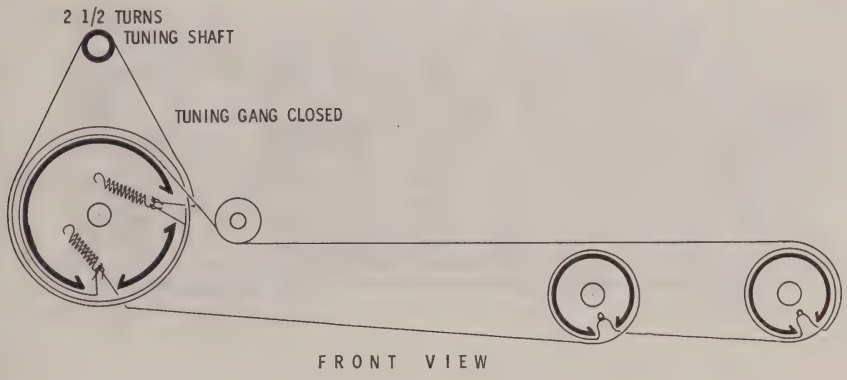
PHOTOFACT® Folder

ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)

ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)

TRADE NAME	Zenith Model Royal 2000 (Ch. 11ET40Z2)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	Battery Operated Transistorized Portable FM-AM Receiver		
POWER SUPPLY	12 Volts DC	RATING	20MA @ 12 Volts DC (No Signal, Min. Volume) 25MA @ 12 Volts DC (Signal, Normal Volume) AM 40MA @ 12 Volts DC (Signal, Normal Volume) FM
TUNING RANGE—BROADCAST	540—1600KC		
FREQ. MOD.	88 — 108MC		

DIAL CORD STRINGING



ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)

SET 560 FOLDER 19

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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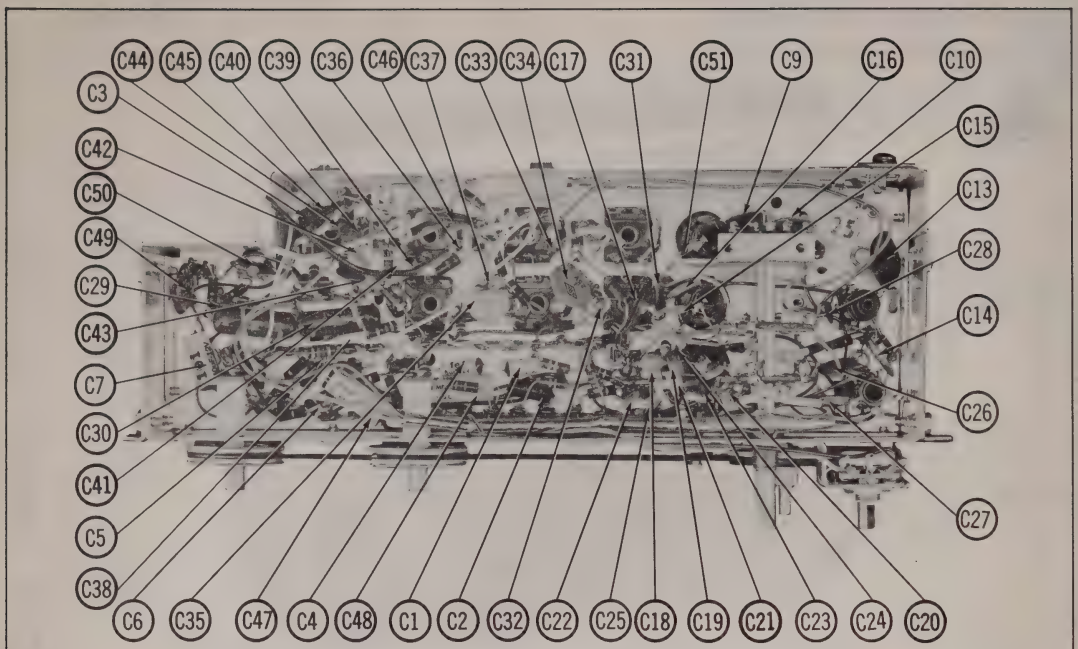
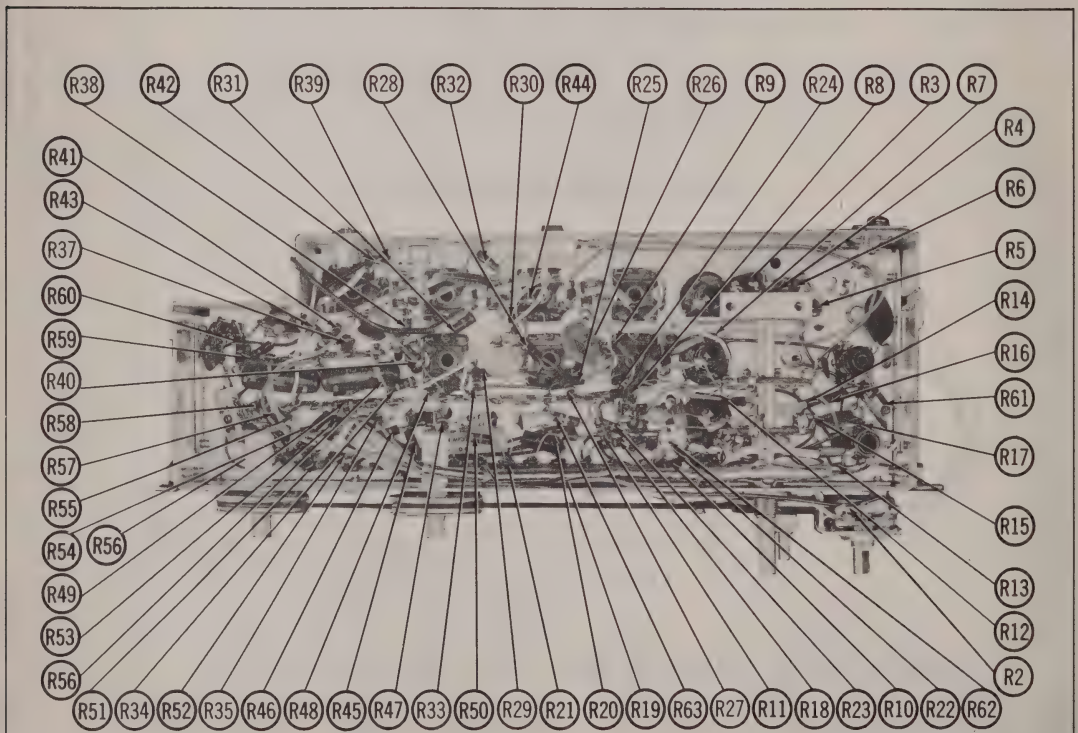
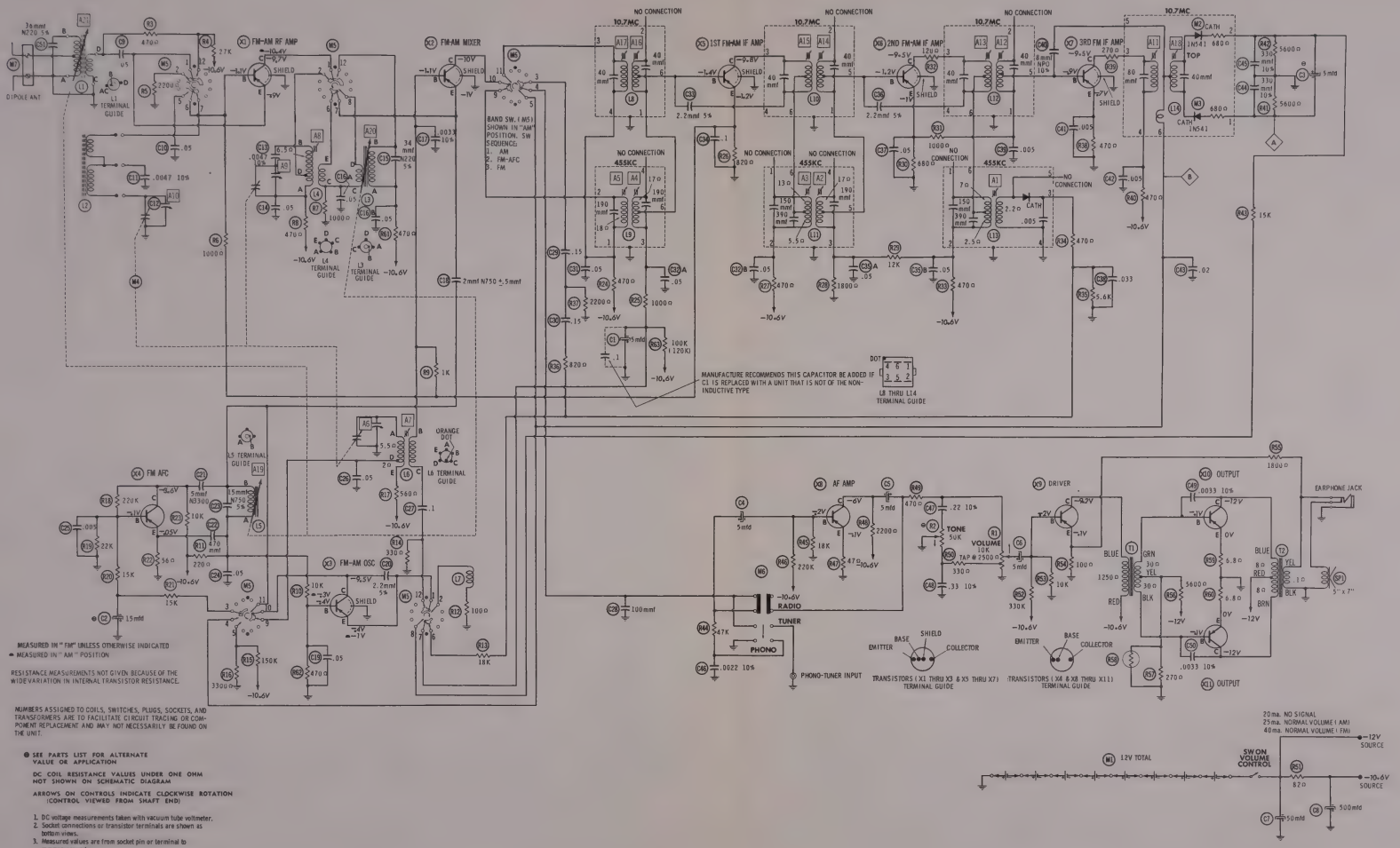
KK837



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



MEASURED IN " FM" UNLESS OTHERWISE INDICATED
MEASURED IN " AM " POSITION

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A5, A7, A8 and A11 thru A18.... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

A9, A10.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into koop of receiver.	455KC (400~ 30% AM)	(AM) 1400KC	Across voice coil.	A1, A2, A3, A4, A5	Adjust for maximum output.
2.	"	1600KC	Tuning gang fully open.	"	A6	"
3.	"	540KC	540KC	"	A7	"
4.	"	600KC	600KC	"	A8	Adjust for maximum output. Repeat Steps 2, 3 and 4.
5.	"	1400KC	1400KC Signal.	"	A9, A10	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) 98MC	DC probe to point Ⓐ. Common to chassis.	A11, A12, A13, A14, A15, A16, A17	Adjust for maximum deflection.
7.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) 98MC	Vert. amp. to point Ⓐ. Low side to chassis.	A11, A12, A13, A14, A15, A16, A17	Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
7.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A18	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals with 120Ω in each lead.	98MC	(FM) 98MC	DC probe to point Ⓐ. Common to chassis.	A19, A20, A21	Adjust for maximum deflection.

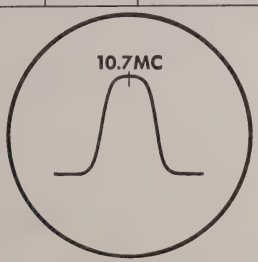


FIG. 1

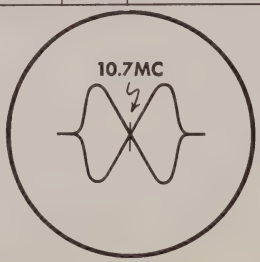
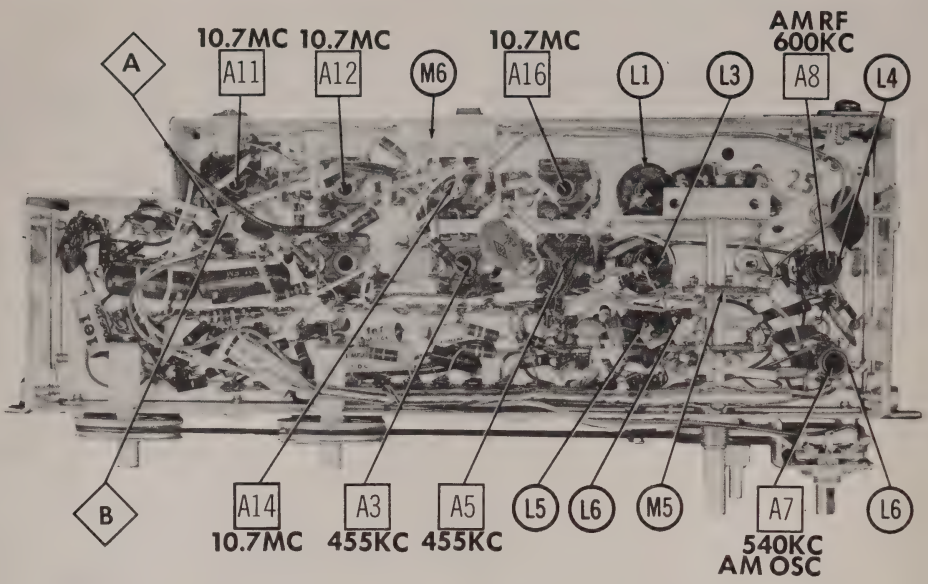
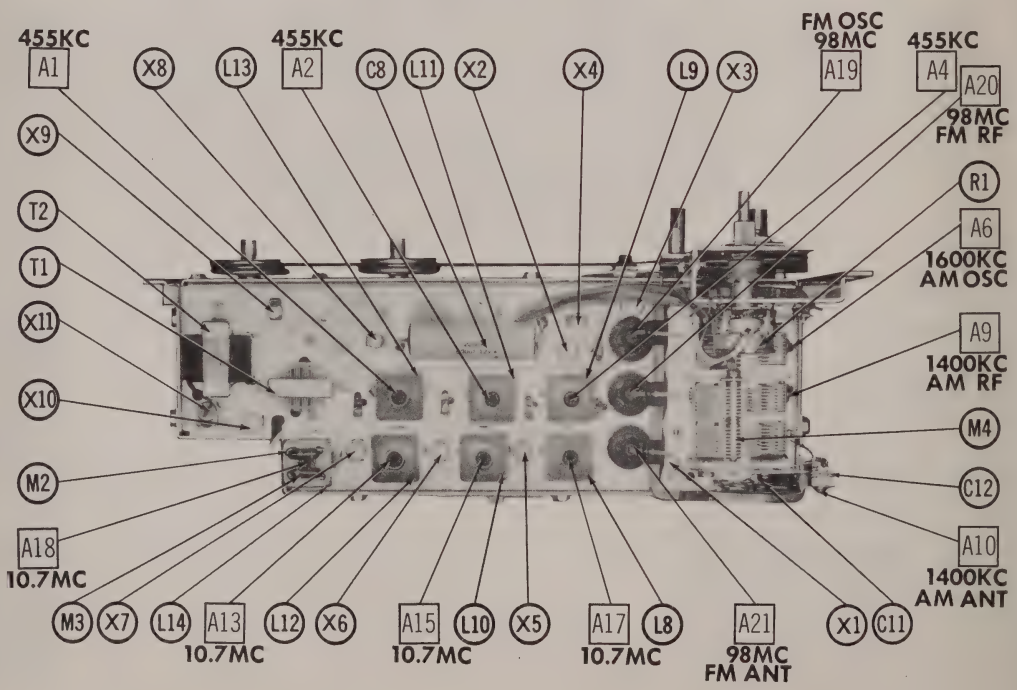


FIG. 2



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR. PART NO.	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	121-134	FM RF Amplifier	2N1177		PNP
X2	121-136	FM-AM Mixer	2N1179		PNP
X3	121-135	FM-AM Osc.	2N1178		PNP
X4	121-148	FM AFC	2N406		PNP
X5	121-138	1st FM-AM IF Amp.	2N1180		PNP
	121-137*	1st FM-AM IF Amp.			PNP
X6	121-138	2nd FM-AM IF Amp.	2N1180		PNP
X7	121-139	3rd FM IF Amp.	2N1180		PNP
X8	121-64	AF Amplifier	2N408	2N362	PNP
X9	121-46	Driver	2N408	2N362	PNP
X10	121-47	Output	2N270	2N360	PNP ┐ Matched
X11	121-47	Output	2N270	2N360	PNP ┘ Pair

* Alternate.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	5	12	22-2884	PTT51	NLW5-15	MT1-3	TT12X5	MLV5-12	TE-1127
C2	15	10	①	PTT40	NLW15-12	MT1-11	TT10X15	MLV15-10	TE-1116
C3	5	25	②	PTT77	NLW5-50	MT1-3	TT25X5	MLV5-25	TE-1202
C4	5	12	22-2884	PTT51	NLW5-15	MT1-3	TT12X5	MLV5-12	TE-1127
C5	5	12	22-2884	PTT51	NLW5-15	MT1-3	TT12X5	MLV5-12	TE-1127
C6	5	12	22-2884	PTT51	NLW5-15	MT1-3	TT12X5	MLV5-12	TE-1127
C7	50	12	22-2883	PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C8	500	12	22-2985	PRS1170	BR5001	QT1-31	TC1505	TD-500-15	TVA-1132

① Some versions may use 16mfd@3V in this application (Part #22-2871).
② Some versions may use 5mfd@12V in this application (Part #22-2884).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C9	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C10	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C11	.0047 10%		DI-4700			CCD-472	JL-247	10TS-D47
C12		#22-3264						
C13	.0047 10%		DI-4700		1R5D47	CCD-472	JL-247	10TS-D47
C14	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C15	34 N220 5%	#22-3258				*		10TCR-Q33
C16A	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
B	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C17	.0033 10%		DI-3300		1R5D33	CCD-332	JL-233	10TS-D33
C18	2 N750 ±.5mmf	#22-2585					CN7-522	10TCU-V22
C19	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-503	TG-S50
C20	2.2 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C21	5 N3300	#22-2990				*		
C22	470		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C23	15 N750 5%			DTN-15	C10Q15U		CN7-415	10TCU-Q15
C24	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C25	.005		BPD-005	DD-502	H-05D5	CCD-502	TA-250	TG-D50
C26	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C27	.1 25V			DA-104	H-05P1	1DP-2-104	TA-010	TG-P10
C28	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C29	.15 50V		P288N-15		WMF1P15E	1DP-3-154	GEM-2015	2TM-P15
C30	.15 50V		P288N-15		WMF1P15E	1DP-3-154	GEM-2015	2TM-P15
C31	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C32A	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
B	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C33	2.2 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C34	.1 25V			DA-104	H-05P1	1DP-2-104	TA-010	TG-P10
C35A	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
B	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C36	2.2 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C37	.05		BPD-05	DDA-503	H-05S5	1DP-2-503	TA-150	TG-S50
C38	.033 50V		P288N-033	DD-303	WMF1P33E	1DP-1-333	GEM-4133	4DP-S33
C39	.005		BPD-005	DD-502	H-05D5	CCD-502	TA-250	TG-D50
C40	8 NPO 10%		NPO-DI 8.2		C10V8C			10TCC-V82
C41	.005		BPD-005	DD-502	H-05D5	CCD-502	TA-250	TG-D50
C42	.005		BPD-005	DD-502	H-05D5	CCD-502	TA-250	TG-D50
C43	.02		BPD-02	DD-203	H-05S2	CCD-203	TA-120	TG-S20
C44	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C45	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C46	.0022 10%		DI-2200		1R5D22	CCD-222	GP222	10TS-D22
C47	.22 50V 10%		V84C2P22-10%		WMF1P22E	1DP-3-224	GEM-2022	2TM-P22
C48	.33 50V 10%		V84C2P33-10%		WMF1P33E	1DP-4-334	GEM-2033	2PS-P33
C49	.0033 10%		DI-3300		1R5D33	CCD-332	JL-233	10TS-D33
C50	.0033 10%		DI-3300		1R5D33	CCD-332	JL-233	10TS-D33
C51	36 N220 5%	#22-3259				*		10TCR-Q39

\# Zenith Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	10K 2500Ω Tap	½	63-4682					Volume
B	Switch							Power Off-On
R2A	50K	½	63-4745①		A47-50K-S	Q11-123	U35	Tone
B	Shaft				FS-3	Not Req.	Not Req.	

① Some versions may use 50K Tone (Part #63-4683).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	470Ω				R30	680Ω			
R4	27K				R31	1000Ω			
R5	2200Ω				R32	120Ω			
R6	1000Ω				R33	470Ω			
R7	1000Ω				R34	470Ω			
R8	470Ω				R35	5600Ω			
R9	1000Ω				R36	820Ω			
R10	10K				R37	2200Ω			
R11	220Ω				R38	470Ω			
R12	100Ω				R39	270Ω			
R13	18K				R40	470Ω			
R14	330Ω				R41	5600Ω			
R15	150K				R42	5600Ω			
R16	3300Ω				R43	15K			
R17	560Ω				R44	47K			
R18	220K				R45	18K			
R19	22K				R46	220K			
R20	15K				R47	47Ω			
R21	15K				R48	2200Ω			
R22	56Ω				R49	470Ω			
R23	10K				R50	330Ω			
R24	470Ω				R51	82Ω			
R25	1000Ω				R52	330K			
R26	820Ω				R53	10K			
R27	470Ω				R54	100Ω			
R28	1800Ω				R55	1800Ω			
R29	12K				R56	5600Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R57	270Ω			
R58	Thermister			Pt. #63-3663
R59	6.8Ω			
R60	6.8Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R61	470Ω			
R62	470Ω			
R63	100K			(120K) *

* Alternate.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	FM Ant.	S-48703					
L2	Loopstick	S-49070					
L3	FM RF	S-48705					
L4	AM RF	S-48710					
L5	FM Osc.	S-48707					
L6	AM Osc.	S-48712					
L7	RF Choke	S-23757					
L8	1st FM IF	95-1738		1463-T1-PC			
L9	1st AM IF	95-1735	BC-327				
L10	2nd FM IF	95-1739		1463-T2-PC			
L11	2nd AM IF	95-1736					
L12	3rd FM IF	95-1739		1463-T3-PC			
L13	3rd AM IF	95-1737					
L14	Ratio Detector	95-1740					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.8	1	95-1741					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	350Ω CT	3-4Ω	95-1742					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	5"x 7"	PM	3-4Ω	49-921	57A15	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	Z2NL		230		A100		M-13R	8 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1N541			1N295	Ratio Detector
M3	1N541			1N295	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Tuning Cap.	22-3247	3 Gang (Ant. 15--296mmf, RF 10—180mmf, Osc. 5—67mmf)
M5	Band Switch	85-641	Rotary Wafer Type
M6	Switch	85-642	Radio-Phono-Tuner (3 Position Slide Type)
M7	Dipole Antenna	S-48764	

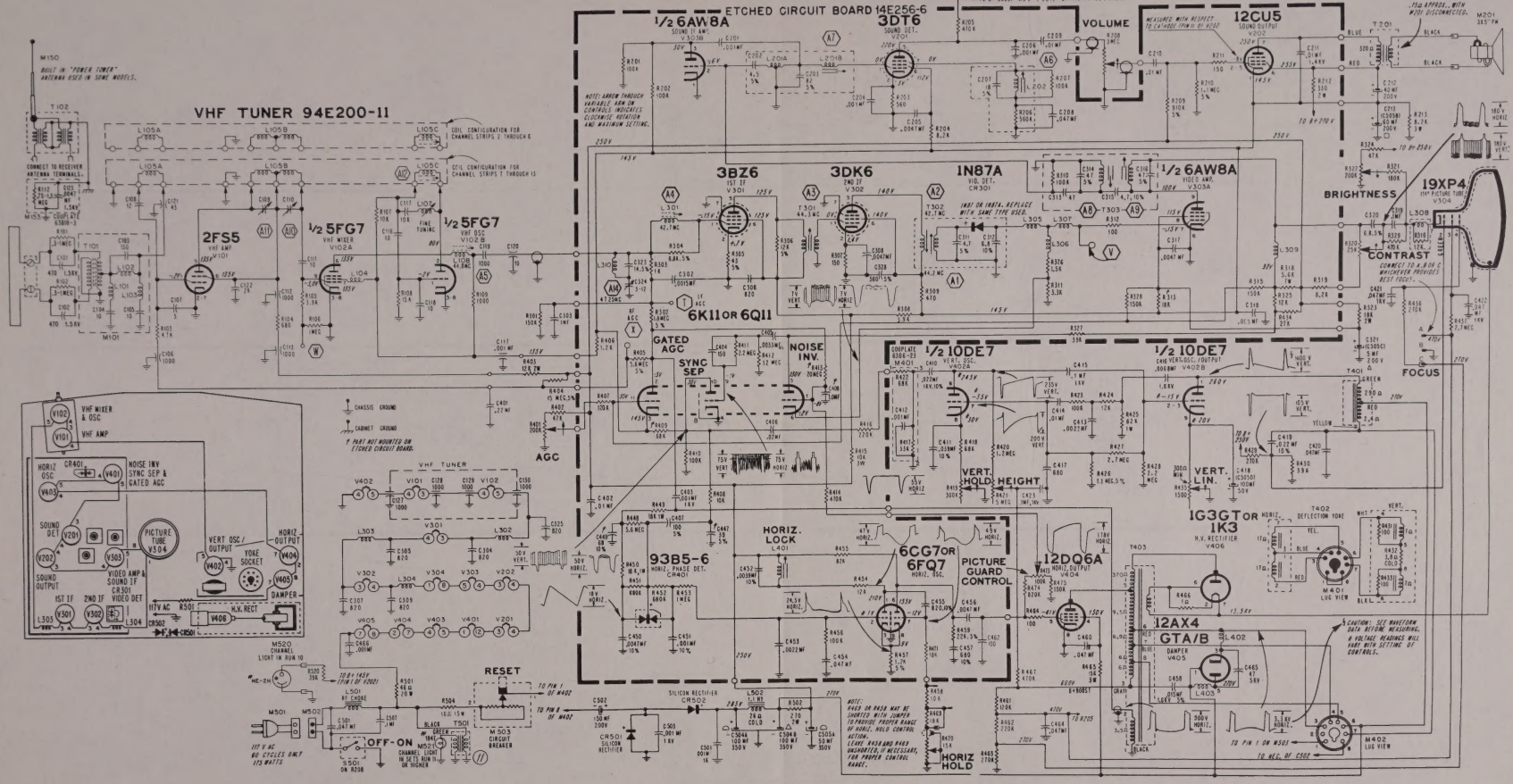
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	26-666	AM
Dial Scale	26-667	FM
Disc-Indicator	S-49086	With Ring
Knob	S-49087	Tuning (With Ring)
Knob	S-49090	Volume (With Ring)
Knob	S-49088	Tone (With Ring)
Knob	S-49089	Function (With Ring)
Handle, Bottom	36-263	
Handle, Top	36-264	
Cabinet	S-49069	With Cover Material, Handle and Dial Scales

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors



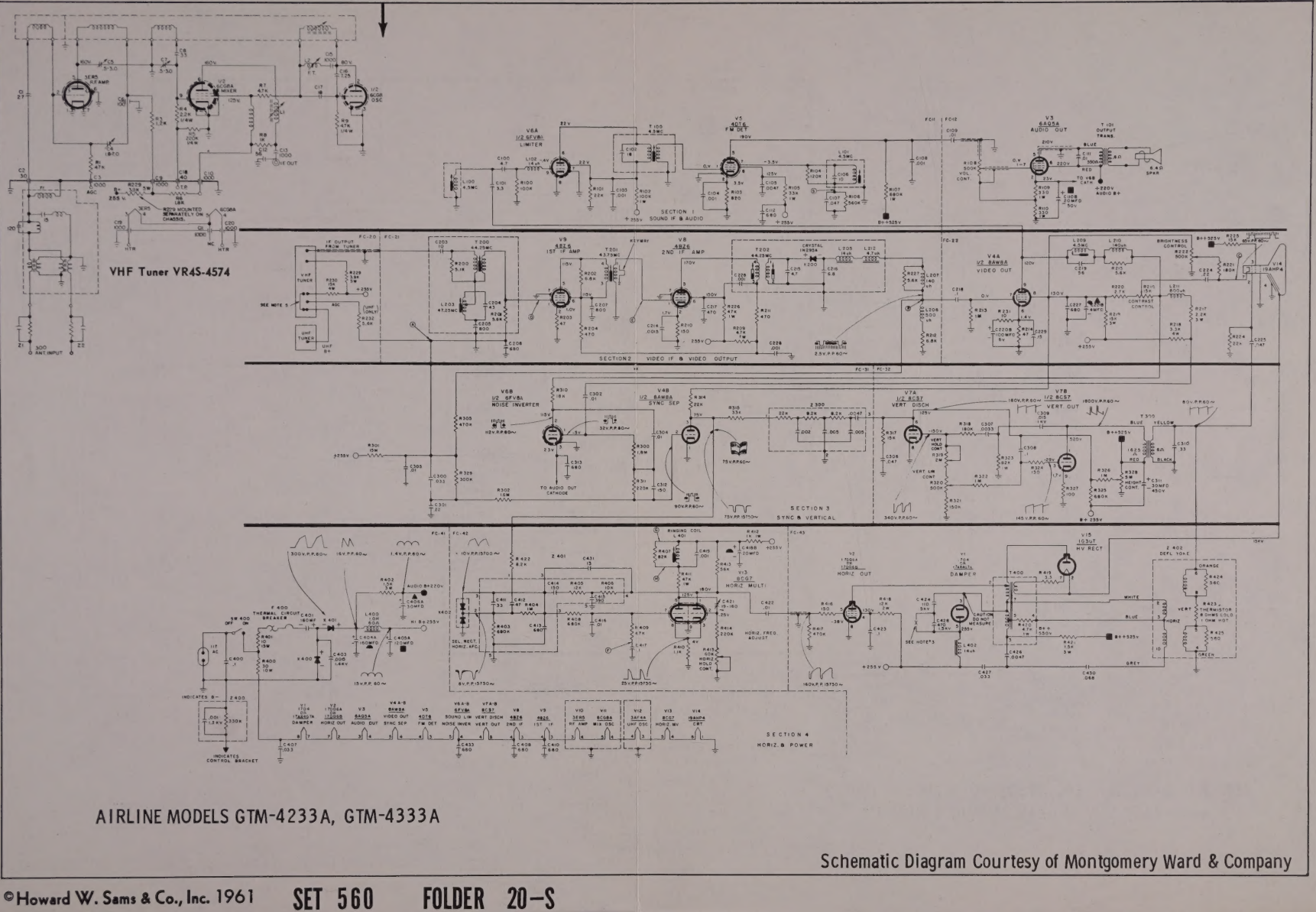
Isolation transformer used. Line Voltage: 117.
Channel Selector on unused channel. Contrast control fully clockwise; all other controls counterclockwise. Do not disturb Picture Guard and Horizontal Hold Controls.
Antenna disconnected and terminals shorted.
DC voltages measured with VTVM between tube socket and chassis, unless otherwise indicated.
Voltages marked (*) will vary widely with control settings.
Waveforms taken with transmitted signal input. For waveforms, controls set for normal picture. Peak-to-peak voltages may vary slightly.

ADMIRAL MODELS P910, P911, P915, P918, UP910, UP911, UP915, UP918 (CH. 16B9B, 16UB9B)

Schematic Diagram Courtesy of Admiral Corporation

← ADMIRAL

AIRLINE ↓


VHF Tuner VR4S-4574
SECTION 1 SOUND IF & AUDIO
SECTION 2 VIDEO IF & VIDEO OUTPUT
SECTION 3 SYNC & VERTICAL
SECTION 4 HORIZ. & POWER

AIRLINE MODELS GTM-4233A, GTM-4333A

Schematic Diagram Courtesy of Montgomery Ward & Company

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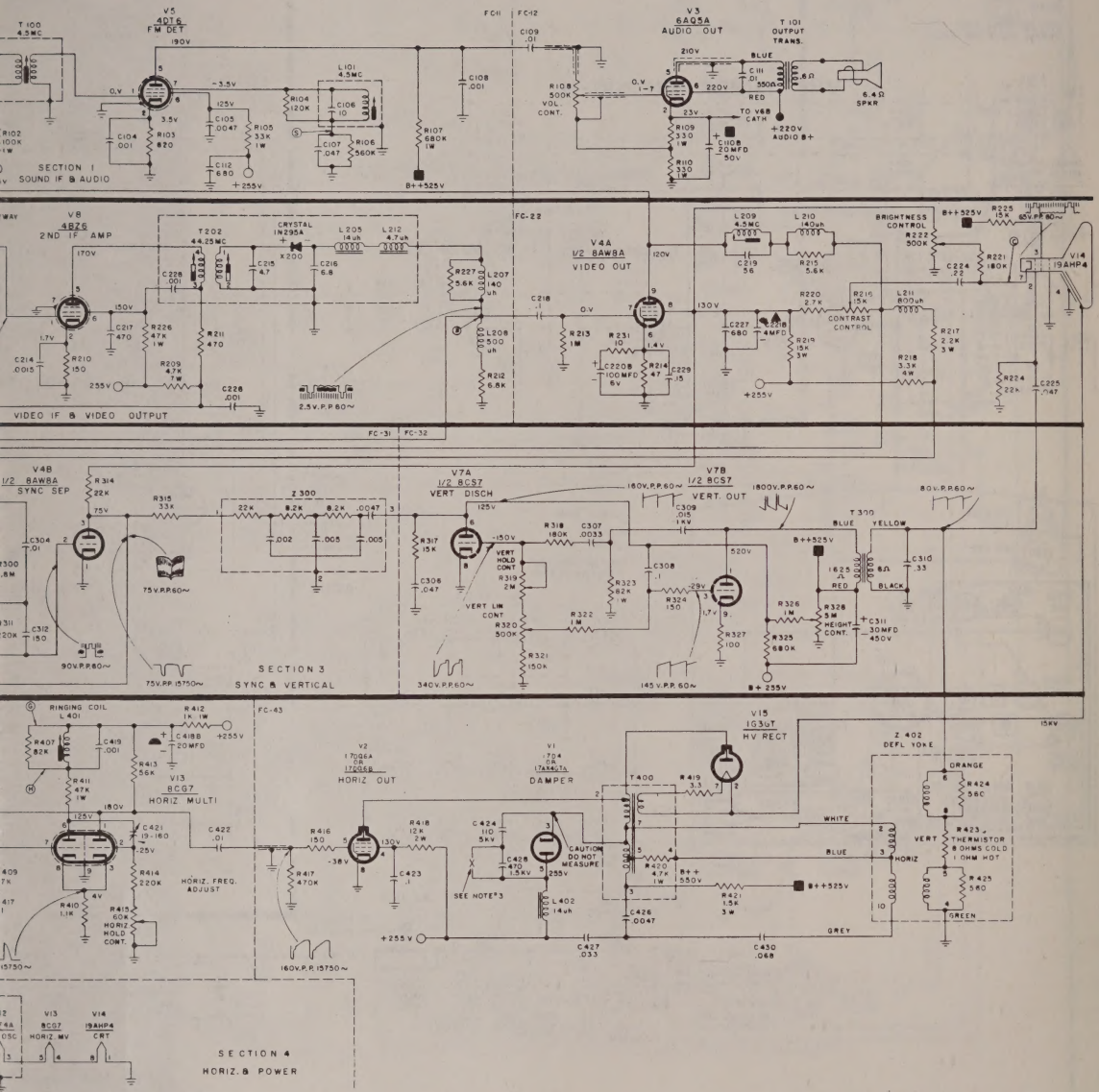
SET 560 FOLDER 20-S



Schematic Diagram Courtesy of Montgomery Ward & Company